The Plea of the Paper Industry

I AM the paper industry—
The essential industry!
My products are the necessary concomitants of civilization;
They are found in expanding volume in every home in Christendom;
Every uncivilized home in the world is waiting for them;
My potential market is unlimited.

MINE is an inspiring industry—
A fundamental industry!
Back of it are the basic elements—
It has to do with sun and shadow, rain and snow,
Earth and sky and shrubs and trees;
Every plant that comes up from the soil contains my raw material;
The urge and the intrigue of the infinite are behind me.

I AM the paper industry—
The prophet of progress—the herald of evolution!
Noble men have labored for me;
History would die without me;
Poetry lives with me;
Art demands me.
Invention writhes upon my surface
And music is indelibly intimate with me.
But for me commerce must halt, finance cease and trade stop—
For processes depend upon me and progresses are made by me.
I alone measure the advance of civilization.

I AM the paper industry!
I have a glorious depth of background.
Consider it a moment with me—
From the dawn of civilization I have ministered to the
Unfolding needs of men as they stumbled on and up through
The ages; providing them always with the media by which
Their progresses were recorded; spreading before them the
Limitless sweep of past and present accomplishments, and
Now facilitating the processes by which they may gleam and
Grip the visions of the days to come—and go forward.

I AM the paper industry—
The potent industry!
The conquests of science were futile without me—
I am the handmaiden of every explorative thrust into the
Unknown hinterlands of race, space, tone and time.
To me is confided all that is known.
I cover and carry all that is grown.
The dreams dreamt by genius are whispered to me—
I guide and I vitalize all endeavor to be.
Behold! and see if there be any industry like unto me?

I AM the paper industry!
Since God gave me being, I've fought
Every fight against might—
But for me Magna Charta would be back in the night.
The pen more potent than the sword can be, only when
It's sheathed in me.

AND finally,
It is to thee—
Oh valiant men of my industry,
I address this pleading litany—
By all that I have been to thee;
By all that I was made to be;
By all that we have done to free
The world from ills of all degree;
Help me to free our industry
From overproduction's bankruptcy.

EDITORIAL

Estimates of Paper Consumption

SOME interesting facts and figures were presented in a paper read before the Woodlands' Section of the Canadian Pulp and Paper Association by Charles W. Boyce, secretary of the American Paper and Pulp Association at the recent annual meeting in Montreal. Mr. Boyce is especially well qualified by his experience in the U. S. Government service as a forester to chart the trends of pulp and paper consumption, which he did in his address before the Canadian Association.

The first statistician to measure the world's paper consumption and provide reasonably accurate estimates of future production and consumption was Franz Krawany, of Vienna. Beginning with the year 1875, Herr Krawany calculated that the world's output and consumption of paper amounted to 1,000,000 tons. By means of slide rule figuring he calculated that in 1900 the consumption would be 5,000,000 tons and for 1905 he named a figure some 3,000,000 tons greater.

Mr. Boyce has been carrying forward some of Krawany's unfinished work. In 1922 he gathered from official and association reports and other sources that the consumption for 1920 totaled 14,000,000 tons of paper. In 1927 this total was increased by 7,000,000 tons and it is now estimated from preliminary figures that at least 22,000,000 tons of paper were consumed in the world in 1929. His studies indicate that the percentage rate of increase in paper consumption in the world since 1875 when Krawany gave out his calculations has been constant, leading him to infer that if consumption is maintained at the same rate until 1975 it should reach close to 250,000,000 tons each year, which, he says, would put an end to overproduction if—and this is a big if—no new mills are built in the meantime.

The United States is still the world's most important paper market. In 1890, this country consumed in excess of 1,000,000 tons, equaling the consumption in the whole world of 1875, as charted by Krawany. In the next two succeeding decades, 1890 consumption doubled, and in 1929 consumption exceeded 13,500,000 tons. To-day the American market, according to Mr. Boyce, requires nearly 60 per cent of the paper produced in the world, though having but six per cent of the world's population. The per capita consumption of paper in the United States is said to have exceeded 215 lb. in 1929, which is more than double the per capita consumption of any other country of comparable economic order. He points out that it is ten times the world's per capita and 20 times the world figures with the United States excluded. His reason for setting out these statistics is to show that if there is a saturation point, the United States market is nearer to it than any other national market.

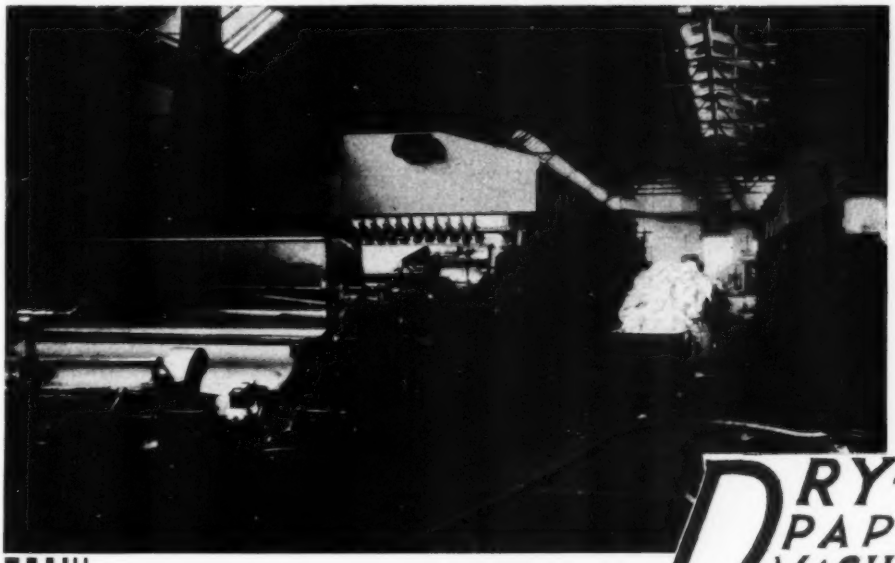
Meanwhile, the consumption of paper is on the increase with the creation of new markets in China, in Turkey and in India where alphabet simplification and the accumulated desire of millions for education have stimulated increased uses for paper. Mr. Boyce is tempted to look on a total world consumption of a quarter of a billion tons by 1975 as not exaggerated, or as he puts it "a far-fetched dream." When it is recalled that over 80 per cent of the paper produced in the world is manufactured in the United States, Canada, Germany and England, in the order named, the greatness of American production, with a peak output in excess of 11,000,000 tons for 1929, equaling nearly half the world production, can be appreciated. It is interesting to note that, with the exception of Canada, the largest consumers of paper are also the largest producers, a condition which is likely to continue.

The position of the pulp industry is pictured in romantic fashion by Mr. Boyce, who observes that "Quietly in the remote spots about the northern hemisphere, vast enterprises have sprung up, new towns and cities have been created, new utilities have been wrested from the snow-bound, black forests of the hinterland. Unheralded, the pulp industry following in the devastated wake of lumbering, has undertaken the tremendous task of making permanent the use of the forests and of giving character to the civilization that scouts the far-away places. By its nature it is essentially constructive."

It is shown that the great bulk of the world wood pulp is made in the United States, Canada, Sweden, Germany, Norway, Finland and Japan, in that order. Canada produced in 1929 a round 100,000 tons in excess of the production in the United States, which was calculated at 4,800,000 tons, but this is nearly twice as much as is produced in Sweden and Germany and nearly five times the production of Finland. Norway is credited with an annual production of 900,000 tons.

Meanwhile, the search continues for cheaper pulpwoods and new processes of cooking. In the United States, the use of new species and the growth of sulphate pulp used is credited by Mr. Boyce with having effected a revitalization of the industry and made competition with this country more and more difficult. It is pointed out that no country in the world possesses such large supplies of easily available cheap pulpwood as the United States, and because so much of its coniferous forest area lies in the fast growing South and in the equally fast growing Northwest, competition will be apt to grow more difficult rather than easier.

The trend of prices for pulpwood is downward, if we are to believe the figures compiled by the Pulpwood Department of the American Paper and Pulp Association. Wood costs are likely to go lower both in North America and in Europe, fol-



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E D I T O R I A L

lowing improvements in logging methods, the reblocking of timberlands to reduce wood transportation costs and the integration of wood-using industries. Mr. Boyce does not think it profitable for Canadian companies to make paper unless their wood costs are kept below $10 a cord and that similar companies in the United States can carry on with $12 wood.

The whole account as given by Mr. Boyce of price tendencies in paper and pulp and the raw material is very suggestive and informing and future reports of this kind will be awaited with considerable expectancy.

Technical Service and Research

THIS is the day of technical service in all industries. In the paper industry it is the exceptional mill that fails to maintain a technical service department. Some of the larger plants have elaborate systems of laboratory controls by which not only the pulp and paper are tested but all the chemicals and raw materials that enter the plant for use in process operations. Thus the heating value of coal is systematically tested in the power plants of all large mills.

In the report of the luncheon meeting of the Technical Association of the Pulp and Paper Industry, which appeared in the March issue of THE PAPER INDUSTRY, there were two arresting addresses which indicated to some extent the increased attention which is now being given to scientific subjects by mill managers.

It was quite appropriate that Henry P. Carruth should discuss the place of the technician in the paper industry, for he has been a consistent advocate of research and chemical control in manufacturing processes ever since the time he was connected with control work in the laboratory of the American Writing Paper Company and later as executive vice-president of the Mead Corporation, a company which is a firm believer in scientific laboratory control of all plant operations.

The other address was made by a consulting chemist who has specialized to a considerable extent in cellulose investigations. Doctor Esselen drew attention to certain possibilities in the way of changes in materials that were rather surprising to his hearers, though most of them were aware of what rayon from wood pulp meant to the silk manufacturers. There is food for thought in everything that Doctor Esselen discussed at the luncheon meeting of T.A.P.P.I. It is quite true it had little or nothing to do with mill problems, or the discovery of new processes or new sequences of operations, though the suggestion of fundamental research was not wanting. The startling nature of the communication was concerned with the possibilities of new raw materials leading to new types of finished product, as in the case of rayon and of wood alcohol, the last named being now produced independently of wood, coke and steam being all that is used.

The planning of tests or development work brings up new problems which require careful study entailing often years of work before anything substantial may be produced. The principle is connected with the application of new ideas to old methods of production, as was pointed out not long ago by G. W. Coggeshall, of the research laboratory of S. D. Warren Company, in his discussion of "practical" and "scientific" research. The opinion is sometimes entertained that so-called practical research is more quickly profit producing than scientific systematic research, but Doctor Coggeshall regards this as a confusion of terms—a confusion between the problem and the method of solving the problem. All problems involving research differ only in their size, the same systematic method of attack being employed on any problem taken up for study, and all are "practical" in the sense that each has as its goal, the production of a commercial article of high grade as cheaply as possible.

There is a practical method of attacking a problem by the operator making a few changes and hoping that such changes will improve the product. But this resolves itself into luck and belongs to a pre-scientific era when all new things were discovered largely by chance. This chance hitting upon a new idea has produced wonderful inventions and discoveries in the old days before the scientific method came into use.

Confidence in the Future of Business

IN his banquet address at the recent annual meeting of the American Paper and Pulp Association, President Sidney L. Willson touched on some of the things which make for confidence in the future of business. He enumerated the vast resources of the United States in population and raw materials, with corporations capable of producing commodities on a mass production basis; great waterpower developments; efficient and high-paid labor, with its resulting large purchasing power, and other advantages.

Courage was needed to effect a change of conditions, so he made a plea for the exhibition of more nerve on the part of business men, only a little more being needed to turn the stagnation of business into activity. Courage is the spirit of victory, and no successful corporation or company lacked men of courage in its management. Another characteristic of our successful corporations was to be found in the higher religious principles applied by their management in daily contacts with customers, employees and their associates, for courage is a quality of the heart.

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THE PAPER INDUSTRY

REG. U. S. PAT. OFF.

Vol. XIII APRIL, 1931 No. 1

Packaging Frozen Foods and Fruit Juices

By R. V. GRAYSON

Consulting Engineer, Polar Products, Inc., Atlanta, Ga.

THE evolution of packaging frozen foods and juices from the inception of this new method of food preservation has slowly but surely been coming to a smaller container of a type that has an advertising value, as well as the qualities of properly preserving the products contained therein.

At the beginning of this industry, most of the frozen foods were packed in barrels and rushed to cold storage plants and placed in sharp freezers where the average temperature was from zero to ten above. It was found that this method of freezing was not sufficient to completely arrest activities and chemical reactions, which bring about the fermentation of the product before it is completely frozen. Then, too, the fact that the product had to be defrosted and repacked in smaller containers for retail trade seriously effected the quality, as well as causing a substantial loss in repacking.

The small individual package has many advantages over the bulk package insofar as retailing is concerned. In the ice cream and pie industries, a bulk package is very desirable. However, it is believed that a container of five gallon capacity should be the maximum size for bulk packing. In considering the retail trade, it has been definitely proven, especially in the frozen strawberry industry, that the paper cup is very satisfactory, and is being universally accepted by manufacturers and retailers as a medium of packaging and merchandizing frozen products. This may be due to the fact that for a number of years various dairy products have been packed in individual containers, as well as oysters and ice creams. The frozen fruit distribution is kindred to these lines as these are the principal mediums of distribution of frozen foods.

The packaging of frozen foods in tin cans has not been generally accepted for several reasons. In the first place, the public is not trained to treat goods packed in tin in any unusual manner, and in the event a can is carelessly placed outside of the refrigerator, fermentation begins immediately upon the defrosting of the product, and when sufficient gas is generated within the can, an explosion usually follows, which is very destructive if not dangerous. It is also necessary to lithograph a can in order to realize any value in the way of advertising the product to the public. It is a physical impossibility to keep labels on cans of frozen products, inasmuch as the various temperature changes cause moisture which readily loosens the paste or glue, as well as soils the label, and the reaction of the housewife to a soiled or discolored package is certainly most unfavorable.

In the matter of paper cups, these containers seem to have a very tidy and neat appearance, and there is no question but that a carefully printed container in two or three colors is a great medium of advertising and undoubtedly a silent salesman, whose attractiveness helps to merchandize the product contained therein.

The paper industry should certainly concentrate their best engineering talent to producing high quality paper cups under the most sanitary conditions, paying particular attention to the various methods of sealing, which is one of the most important factors in packaging frozen foods. It has become very noticeable in the past several years that wax containers are becoming more and more the standard package for food stuffs. They have been adopted by the ice cream trade for packaging of ice cream

for many years. The frozen food industry has accepted them as the best package for fruits and juices. The creamery has long used paper cups in the packing of cottage cheese. A number of new industries are springing up every day in the fast freezing field, and shortly a new industry will begin operations in a northern state, packaging unjointed frying chicken, and this product will also be packed in the waxed paper cup with a suitable design which will tell the story of frozen poultry.

It is not impossible to believe that a large percentage of the paper manufactured in the United States will be used in the manufacture of paper cups for the packaging of a large percentage of America's frozen food products. This, however, depends largely on how much time and money the paper industry spends in going to the bottom of delicate problems in packaging of frozen foods. Any industry to maintain its position in the commercial world of today must be on their toes and keep abreast of the times. It is believed that the paper industry is wide awake.

Lessons in Steam Plant Practice

Lesson XI—Flash Tanks

By J. CHARLES RYDER
Champion Fibre Company, Canton, N. C.

These lessons in Steam Plant Practice are being published in THE PAPER INDUSTRY by arrangement with the Champion Fibre Company, Canton, N. C. They are a part of the general educational course conducted by this company under the direction of J. Norman Spawn, educational director.

BOILER insurance companies and safety regulations require a shock tank on the end of all blow-down lines to receive the hot water and steam, thereby permitting it to flow into the sewer gradually. Boiler blow-downs cause considerable waste of valuable heat, the greater portion of which can be saved by the use of a flash tank.

The idea of the flash tank is to flash steam from hot water when the water is released from a higher to a lower pressure. The water carries sufficient heat due to the high pressure, and upon entering a lower pressure tank, part of the water will flash into steam. This steam can be utilized to do useful work, thereby saving coal.

This idea of flashing steam is not new; it has been and is now used in some plants to run low pressure condensing turbines.

The steam accumulator is a form of flash tank, smoothing out limited peak loads or steam demands by storing heat in a large body of water, liberating this heat in the form of steam when required.

Flash tanks are nothing more nor less than the application of an old principle to fit in present day practice, which can be made flexible enough to suit most any industry where steam is used in processing.

Water, as we have learned, can be a solid (ice), or a gas (superheated steam). Between the two extremes many things can be done with water; flashing steam from hot water is among them. Take a steam trap for instance. On one side the trap is on the high pressure, while the bucket is filling with condensate. When the bucket is full, the trap will dump all the water out to the atmosphere. Immediately clouds of steam arise, because the trap dumped to a lower pressure, re-evaporating part of the water and causing the steam to rise. This is exactly what occurs in a flash tank, only the rising steam is controlled and put to useful work.

The amount of steam generated thus may be from 10 to 30 per cent of the water dumped in, depending upon the initial and final temperatures and pressures. There are various factors that enter into the satisfactory operation of a flash tank. For instance, the temperature, pressure and condition of the hot water; the proposed use of the steam, and whether the steam must enter a line that already has pressure on it; the use of the discharged water; the size and design of the available tank and its location, must all be considered.

Any tank that will hold the pressure required will answer—round or square, vertical or horizontal. A little revamping of the tank may have to be done, to suit the available location, or to make inlet and outlet connections. Also the tank must be strong enough to withstand any shock or surges that may occur.

A Simple Type of Construction

A simple tank easy to construct is shown in Figure 1. This is round, about ten feet long by about six feet in diameter, made of ⅜-inch sheet iron. (A) in Figure 1 is a blow-down line from several boilers. Into this same line is connected an economizer blow-down, four tracyfier traps and feed water heater blow-downs.

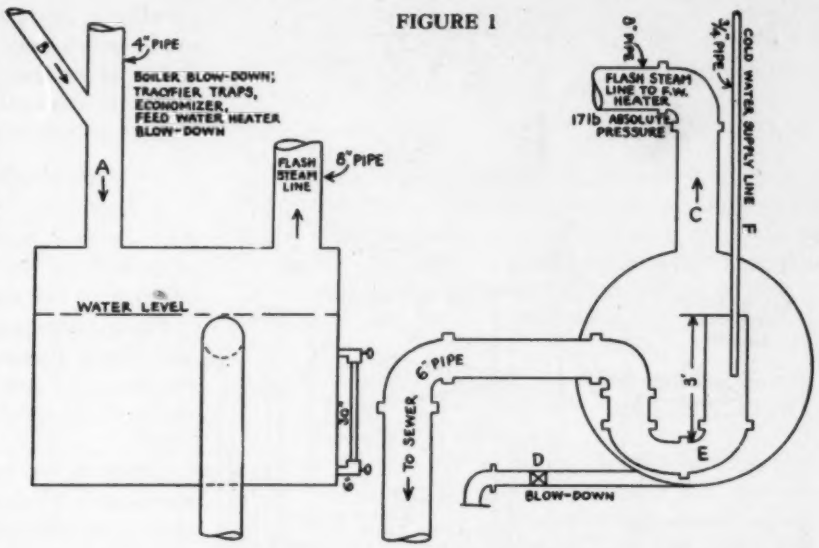
The steam is flashed up into an open feed water heater at two-pound gauge pressure through line (C) connected on top of the tank. The loop (E) inside the tank determines the steam pressure and this applies whether used inside or outside. The higher the loop, the greater will be the steam pressure for any flash tank.

In this tank the loop is the overflow, always sealed

with water, preventing the steam from escaping to the atmosphere. Should the seal be blown out from too vigorous boiler blowing-down, the loop must be resealed again, or the steam will escape through it. In order to do this quickly, the line (F) which is a cold water supply line, is used to reseal.

The blow-downs and tracyfier traps dump mud and sludge in the tank, which must be blown down occasionally, and the drain (D) is used for this purpose.

FIGURE 1



A Vertical Type

Figure 2 shows a vertical flash tank. This is 12 feet high by 3 feet in diameter. The tank (A) has five baffles for the water to flow over, breaking it up so as to release the maximum amount of steam. This tank receives water from various sources, pressures and temperatures.

(B) in Fig. 2 is a view looking down on the top where the various lines enter.

At (C) is a series of sheet iron baffles welded in the tank and set in a zig-zag fashion. The pipe line (D) at the top is the flashed steam line leading to a deaerator or heater. (E) is the gauge glass. (F) is a condensate pump delivering the water into the top of the deaerator or heater through line (G).

The loop or seal for this flash tank is ten feet from bottom to top and made of six-inch pipe (H).

This tank does not overflow because the pump keeps the water level about one-half way in the glass by means of the float and valve at (I). The valve is located on the discharge side of the pump, automatically controlling the amount held in the tank. The tank gets its water in "slugs," there are about 50 steam traps of all sizes dumping into it, as well as drains from various turbines, all of which is pumped up into a deaerator or heater.

Another Type of Vertical Tank

Figure 3 is another type of vertical flash tank, made from a large steam separator. The water enters by way of two three-inch lines at (A), in which is connected a one-inch jumper line around the three-inch gate valves, and needle control valves are in the one-inch line. Water entering at 448 deg. Fahr., strikes the baffle (B) and spreading out causes the steam to flash from it, which then leaves through the ten-inch line (C) at 17 lb. absolute pressure. (D) is the gauge glass.

The water passes down and up through the 25-foot loop into another tank (E), discharging near the bottom of the tank, thus forming a double seal. Water leaves tank (E) at the bottom on its way by gravity to a series of heating coils. The water leaving tank (E) has 176 B.t.u. per pound and the temperature is 208 deg. Fahr., while the temperature leaving the heating coils going into the sewer is from 90 to 100 deg. Fahr.

(F) is a vent on tank (E). (G) is the water gauge glass. The water, due to the pressure in the tank (B) will only show two or three inches in (D), while it will show 16 inches in (G). There is a difference in the levels of as much as 24 inches at times.

How to Calculate Steam Flashed

To calculate the amount of steam flashed off, it is necessary to know the inlet and outlet temperature of the water and the latent heat of the steam. Latent heat is the only heat added to the steam, because we are furnished more than the heat of the liquid to start with.

All flash tanks are figured the same, excepting the temperatures and pressures may be different in each case.

Figuring the heat of liquid entering flash tank is 429 B.t.u.,—the heat of liquid at two-lb. gauge (17 lb. absolute) is 187.48 B.t.u.; then, 429 — 187.48 = 241.52 B.t.u. flashed into steam.

The latent heat of two-lb. gauge or 17-lb. absolute steam is 965.4 B.t.u. $\frac{965.4}{241.52}$ = four pounds of water to flash one pound of steam, or, in other words, it takes four pounds of water entering the flash tank to flash off one pound of steam. Accordingly, $\frac{1 \times 100}{4}$ = 25 per cent of the water is flashed into steam, for the temperatures and pressures shown in Figure 3.

Flashed steam is high in moisture content, ranging from five to ten per cent, and for this reason hot

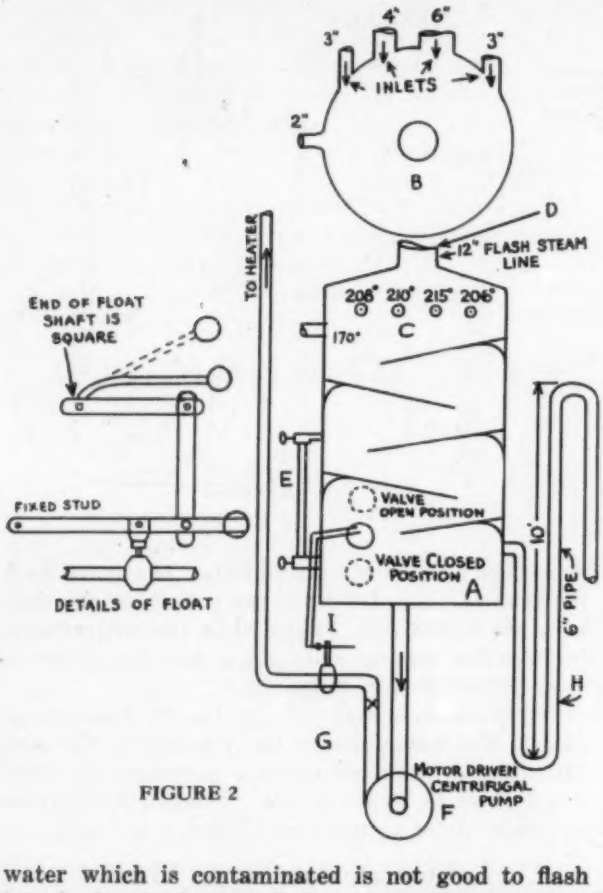


FIGURE 2

water which is contaminated is not good to flash into feed water heaters, but can be used in a surface condenser or heat exchanger to heat cold water.

The size of the pipe used in the seal or loop line has some bearing on the length of the loop to hold a given pressure. For instance, it was found by experiment that a four-inch sealed line had to be about 16 feet long to hold a 2½-pound pressure with 210-degree water, while another loop of ten-inch pipe on the same tank with the same water temperature is only six feet long. The static head or weight of water is greater in the larger pipe.

This is contrary to the general opinion that two feet of water will hold one pound pressure; of course, the hotter the water, the lighter a cubic foot of it will be. Theoretically, a column of water one foot high will give a pressure of .433 pounds per square inch, or roughly one-half pound at 60 degrees temperature, but if you tried to hold one-half pound of steam pressure with one foot of water, it would in practice blow the water out.

There is a certain amount of surging in any flash tank and if the pressure seal is made too close to the theoretical figure, the surging water in the seal, rocking back and forth, will finally blow out unless the loop is made long enough to take care of this surging.

Calculation of Blow-Down Losses

A continuous blow-down system from a boiler makes a good application for a flash tank. The saving of heat from the blow-down water will soon repay the cost of installation.

Flash tanks are usually a part of the continuous blow-down system. There are several of these systems on the market. Like other equipment, they must fit the boilers and plant layout they are to serve.

There is no reason why every plant should not know just what their blow-down losses are and be able to control them within definite limits. Various meters are on the market which will give the concentration of the feed and blow-down waters. One method of applying the information obtained from the feed and blow-down water is described as follows:

Let S = Solids in feed water in grains per gallon. C = Concentration or solids in blow-down water in grains per gallon, then $\frac{C}{S}$ = Gallons of water put in boiler for each one gallon blown down.

It follows that $1 \times 100 \div$ gallons of water put in boiler, equals per cent blow-down.

If a steam flow meter is used to measure the boiler evaporation, then the amount of water handled by the feed pump will be the total evaporation plus blow-down, or if a venturi meter is used to measure the incoming water, then the per cent blow-down must be subtracted from the venturi reading to get the boiler evaporation.

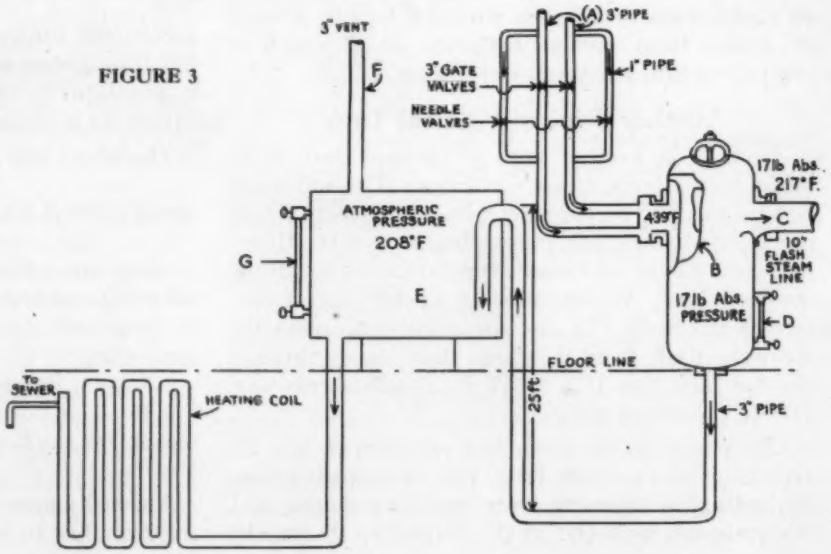


FIGURE 3

Suppose the feed water contains three grains per gallon of solubles and the concentration of the blow-down is 150 grains per gallon, then

$\frac{150}{3}$ = 50 gallons of water put in boiler for every one gallon blown down; therefore,

$\frac{1 \times 100}{50}$ = two per cent blow-down loss.

The heat loss of a blow-down is the heat of the liquid of the boiler water for the average pressure carried. If, for instance, the boiler is operated at a 285-pound pressure per square inch gauge, the heat of the liquid will be 393.9 B.t.u. per pound. Where the blow-down water empties into a shock tank and from there to a sewer, this 393.9 B.t.u. is a total loss and must be figured as such. It is not correct to deduct the heat units entering the boiler with the feed water in a case like this. However, it is proper to multiply the B.t.u. of the fuel by the overall efficiency to arrive at the coal cost of the blow-down.

Taking the example above, the water leaving the boiler with 393.9 B.t.u. per pound and arriving at the sewer at atmospheric pressure and temperature, carries with it 180 B.t.u. per pound of water, and the difference between 393.9 and 180 B.t.u. equals 213.9 B.t.u. which flashes into steam in the shock tank, or

$\frac{213.9 \times 100}{970.4}$ = 22 per cent steam.

This 22 per cent steam can be flashed back into useful work.

The following formula will give the cost of coal loss of blow-downs to sewer:

$$\text{Coal cost} = \frac{H \times C}{U \times E} \times \text{amount blown down.}$$

H = B.t.u. of boiler water.

C = Cost of coal per pound.

U = Equals B.t.u. in one pound of coal.

E = Average overall efficiency.

Substituting the numerical values and assuming that coal costs $3.00* per ton or .0015 per pound, and the boiler operated at 80 per cent efficiency, using 12,400 B.t.u. coal, with a total blow-down for 24 hours of 75,000 pounds; then

$\frac{393.9 \times .0015}{12{,}400 \times .80} \times 75{,}000 = \$4.98$ coal cost for B.t.u. in blow-down water for 24 hours.

Now if 22 per cent of 75,000 pounds of water is flashed back into steam, the saving will be 16,500 pounds of steam at atmospheric pressure, and the equivalent coal savings is

$\frac{16{,}500 \times 970.4 \times .0015}{12{,}400 \times .80} = \$2.42.$

If the remaining 58,500 pounds of water is run through a heat exchanger reducing its temperature to say 100 deg. Fahr., a further saving here will be $(100 - 22) \times 75{,}000 = 58{,}500$ pounds of water giving up 112 B.t.u. per pound; then $112 \times 58{,}500 = 6{,}552{,}000$ B.t.u., and the equivalent coal savings will be

$\frac{6{,}552{,}000 \times .0015}{12{,}400 \times .80} = 99\text{c.}$ (See note)

Assuming the above saving is effected, part of the cost of the water and treatment is lost, because the water which has passed through the heat exchanger goes to the sewer while the water which has been flashed into steam has been saved.

Suppose the total water and treatment cost 14c per 1,000 gallons, the water blown down will then cost $\frac{.00014}{8.34} \times 75{,}000 = \$1.28.$

Sixteen thousand five hundred pounds was returned as steam, therefore

$\frac{.00014}{8.34} \times 16{,}500 = 28\text{c saved.}$

Tabulating the results as follows:

Shock Tank System		
Total steam generated pounds actual	3,750,000	
Blow-down pounds	75,000	
Per cent blown down	2	
Pounds of steam flashed back 22% of 75,000	16,500	
Coal cost of blow-down heat from boiler to shock tank		$4.98
Coal cost of water and treatment boiler to shock tank		1.28
Total cost of blow-down to shock tank		$6.26
Savings possible with a flash tank		
Flashed steam	$2.42	
Water of flashed steam	.28	
Reclaimed heat at exchanger	.99	
Total saved		$3.69
Net cost by use of flash tank.		
Water and treatment from heat exchanger to sewer	$1.00	
Radiation and loss of heat in sewer water above 32°	1.57	
Total		$2.57
		$6.26

*The figure for the price of coal is an arbitrary one merely used to show how the problem is worked. Coal delivered into the furnace would probably cost two to three dollars per ton more with a corresponding saving.

Note—All those connected with power plants know that the temperature of boiling water at atmospheric pressure is 212 deg. Fahr. and contains 180 B.t.u. per pound. The 112 B.t.u. used in the above example is found by subtracting the B.t.u. of the water that has passed through the heat exchanger to

the sewer, from those in the water after the steam has flashed off which is 180 B.t.u.

As an example, the water entering carries 180 while that leaving carries 68 B.t.u. per pound; then 180 — 68 = 112.

$$\text{Here then, a saving of } \frac{3.69}{6.26} \times 100 = 59 \text{ per cent}$$

of the blow-down heat which it is possible to save at very little expense.

Of course a plant generating 3,750,000 pounds of steam per day or 156,250 pounds per hour is considered a small to medium size plant as steam plants go today. If this amount is made in more than one boiler, the blow-down costs will be considerable higher. The greater number of smaller boilers used to make a given amount of steam, the more the blow-down losses will be, because the concentration of each unit must be kept down.

Examination Questions

(1) What is the idea of a flash tank?
(2) What causes the hot water to give off steam?
(3) How is the steam pressure maintained in a flash tank?
(4) The water entering a flash tank has 325 B.t.u. per pound, flashing into steam at 17 lb. absolute pressure. What per cent of the water is flashed into steam?
(5) Water entering the sewer is 208 deg. Fahr. and is contaminated so as to be unfit for direct feed-water heating. How can this heat be reclaimed?
(6) The boiler feed water has 3.43 grains per gallon solubles and the blow-down concentration is 156.32 grains per gallon. What per cent of water was blown down?
(7) Explain difference between a shock tank and a flash tank?
(8) A boiler operating at 250 pounds pressure gauge, how many B.t.u. in the boiler water?
(9) How many B.t.u. in latent heat of 16 lb. absolute pressure steam?
(10) Where several small boilers carry the same load as one large one, which will have the greatest blow-down loss?

Permanence and Papermaking

By DR. TH. BENTZEN
Chief Chemist, Whiting-Plover Paper Co., Stevens Point, Wis.

THE following article forms a short supplement to my series in Vol. XII, No. 1-5 of this magazine.

At the Fall Meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, (TAPPI) at Portland, Mr. B. W. Scribner of the U. S. Bureau of Standards, presented a paper on "Bureau of Standards Studies on the Deterioration of Paper," published by permission of the Director of the National Bureau of Standards of the United States Department of Commerce, and in this paper Mr. Scribner, with utmost exactness, reports the results of a series of experiments, which entirely and completely proves the superiority of rag as papermaking material above even the highest grade of purified wood pulp, and thereby presents an authentic manifestation of the correctness of the contents of my above mentioned series.

Of these by the Bureau of Standards stated facts, I shall especially point out the following:

1—Comparing new white rag half stock with highly purified wood pulp, the contents of alpha cellulose (the real fiber part of the cellulose) was 98.2 per cent in rag against 91.9 per cent in the wood pulp.

2—Comparing the copper number of new rag 0.27 and of old rag 0.57, with that of the highly purified wood pulp 0.64, we learn that new rag is more than two times superior to the very best wood pulp, and that even old rag is better than any grade of wood pulp.

Still more important and still more conspicuous is the superiority of finished paper made from rag to even the very best wood pulp paper. If we, in accordance with Mr. Scribner's statements, compare the folding endurance of commercial papers made respectively from rag and from highest grade purified wood pulp, we learn that in machine direction:

3—Rag paper gave a result of 3,639 double folds and the high grade wood pulp paper only 2,465. This proves that the rag paper is 48 per cent stronger than the wood pulp paper in machine direction.

Furthermore, and still more, according to Mr. Scribner's comparing experiments—

Rag paper gave in cross direction 2,814 double folds and the high grade wood pulp paper not more than 1,560, which means a superiority of strength of 80 per cent of the rag paper in cross direction.

In this way, Scribner has established undisputable proof that rag paper is 48 and 80 per cent stronger with respect to direction, than the very best wood pulp paper.

4—Also, the copper number shows the superiority of rag paper, as according to Scribner—

Rag bond has a copper number of 1.03, the high grade wood pulp paper as high as 1.31, which states that the wood pulp paper is 25 per cent inferior to the rag paper.

That, according to Scribner, the results of the oven tests in different cases proves that rag, even old rag, is considerably superior to the purified wood pulp, shall not be taken into consideration on this occasion, as I regard the oven test as an exaggeration and its results to be of very questionable value. I am investigating this problem and shall later return to it, and at the same time prove that strength and permanence are rather closely connected qualities, that it is easy to prove that the oven test is complete foolishness, and that it is possible to establish a systematic natural aging within a comparatively short length of time, and perfectly controllable.

Current Thought by William Sibley

Getting On

THIS month I should like to devote my allotted space to a little talk for the younger men—the fellows who, in the fullness of their ambition and keenness of their desire to "make good" in their work, are perhaps wondering, secretly, why the boss hasn't advanced them faster.

May I say at the outset, young man, that the only difference between you and the boss is **brains?** That is to say: the result of experience. I am a business writer. The only difference between me and Sam Blythe, Isaac Marcossen, George Pattula or other business writers who get paid from $100 to $2,500 an article is—brains. They have writing brains in a measure not to be approached by me. Or perhaps, a less harsh but no more truthful way to put it would be to say that they have had more experience than I and that their experience not only has made them better writers but dowered them with a knowledge of what to write about.

By the same yardstick, the only difference between you and your boss, or you and Henry Ford, or you and Charles Schwab is—brains. This is not to say you haven't the necessary material with which to develop brains. You have as many ounces of membrane in your cranium as the next man. But a mere mass of membrane isn't "brains" per se. Brains is the result of experience; and as such, Ford, Schwab, your boss and all the rest have more brains than you. If that weren't true they would be where you are, commercially speaking. And the only way to remedy the situation is to set out and get the experience that is theirs.

A couple of years ago a young lad presented himself at my door and asked for a "job." He had been badly bitten by the writing bug, so wanted to do something "editorial." At the time I had nothing to offer him but he was such a sincere sort of chap, so full of life and energy, that I had him sit down for a chat. A few simple questions revealed the fact that he was 23, university education, a product of Iowa and the possessor of a deep seated desire to write advertisements. He had the rather vague idea that some day he wanted to have his own advertising agency. I asked him how he expected to become a qualified advertising man,—and when. He didn't know. He "thought" working for an advertising agency would be just the thing.

Right there the two of us started to analyze his present position in life and how to bridge the gap to his acknowledged destination. Here on one side of the chart we had an inexperienced young man of 23. On the other side of the chart was the ultimate goal of a $40,000-a-year position. What was the **existing** difference between the young boy and the man now occupying his goal—? Nothing but experience. Give the boy the man's experience and the position would also be his.

How to get that experience—? Well—how did the present incumbent get **his** experience?

In the first place, the qualified advertising man had spent 18 years **getting** his experience. That was point number one. Every young man will be not only much better off but will actually make faster progress if he will settle himself at once to the realization that he can attain his desired goal and really become a success only after 15 or 20 years. "Heaven is not attained in a single bound" and the sooner we realize that fact the quicker we will cease wasting time in wishing or kicking.

In the second place, the qualified advertising man had spent two or three of his earlier years as a reporter on a small town daily. That was point number two. His former reportorial work had given him most valuable training in four much-to-be-desired factors: speed, accuracy, brevity and a good working knowledge of human nature. Reportorial work, particularly on a **small town** daily, can be very valuable training for anyone who wants to write or sell as a later vocation. To be a good reporter one must be fast on his feet, have nimble fingers and an alert mind. He must **always** be accurate. He must drill into himself the desirability of **brevity**—willingness to lay aside every possible non-essential. The reporter gains good writ-

ing experience, but better still he gains an understanding of the perplexing vagaries of human nature. For instance, the reporter learns that if three witnesses of an automobile accident are hailed into court to tell what they saw, all three may each tell "the truth, the whole truth and nothing but the truth," yet each contradict the other;—merely because each witness saw the accident from his own individual point of view.

In the third place, the present highly paid advertising man had held a series of positions each of which contributed definite knowledge of various industries and phases of merchandising, all of which experience and knowledge served a most useful purpose in handling the sales promotional work for varying clients.

In the fourth place, the present successful man had vastly enlarged his own limited experience with that of others. Too often we fail to know fully a thing until we personally have tried it. Too often we have to prove things to ourselves by our own deeds. Only a few can be shown by the experience of others, but those few invariably get farther than the man limited by **personal** experience.

Only upon analysis of what is required to reach a certain goal can a young man "go thou and do likewise." Yet such an analysis, carefully made, of any field, be it pulp mill superintendent, mill manager, sales manager, engineer, or bricklayer, will always disclose the path to follow, and the unswerving pursuit of a logical goal made along the shortest possible route, will invariably bring the young man at the end of his 15-year course to his previously established destination.

When a young man enters the working world he must answer one question: "What have you got?" And that is the question that this same man must answer every day of his working career. And woe is the man, young or old, who lies about what he has, for the world has a way of searchingly and impartially making a man prove his statements.

From long experience the world knows that all there is to be expected from a lad of 16 or 18 is honesty, industry, intelligence and earnestness. But these qualities it demands. If a boy has not these qualities, he is immediately barred from all employments which require them; which is to say practically all pursuits save those of muscular effort alone. The fresh-laid college man has the advantage of the mental discipline and theoretical learning that the 16-year-old boy has not, but aside from these advantages his start in business is essentially the same.

Once started, the boy soon shows what he has. And he soon learns that he must continue such showing—in ever-increasing quantity and finer quality if he is to progress. The "secret," if it be such, of success lies in the amount of brains possessed. Brains is the distilled essence of experience. Experience is acquired, not endowed. Experience is most rapidly gained by first determining where you want to be when you are 35 or 40—what the present incumbents of those places have which you haven't, and how they got it—their **getting it.** Success requires a firm foundation.

Infants are amused by rattles. When grown to adults, many of them are amused by their brains.

The man who wears his hat at an acute angle admits to the world that he thinks he is cute.

There is one redeeming feature about a period of business depression. While in it one seldom hears an off-color story.

When a child we accepted without question the multiplication table and the definition of a verb transitive. Why then is it that as adults we cannot accept the experience of others but must try everything for ourselves? Particularly when the adaptation of experience is so important to commercial progress?

Never before have the standards of living been raised so high as in present-day America. This is the age of social progress for everything save the legal profession and the ministry.

There will never be any successful laws enacted against the use of tobacco until such use makes a man deprive his children of shoes and shelter or go home and beat his wife.

My Patchwork Quilt

My memory is a patchwork quilt—each square a tiny incident kept from days of long ago. Some are bright as yellow and bring smiles when I look at them; some are crimson, deep with emotion; some plaid like the cross-hatch impression on the end of my nose after I had collided with the screen door.

This patch of dark blue came from my mother's house dress, worn while carrying the little boy who never lived. This patch of brown was taken from the autumn fields where Wag and father and I used to hunt prairie chickens. And this bit of tan still smells musty from the hay in the barn loft. While this bit of silk plush came from the organ scarf in the parlor where father and mother used to sing "Juanita," "In the Gloaming" and Robin Adair." And this bit of sorrel was taken from the shedding coat of old Bonnie who used to take the whole family over to the "Jim" river for a summer Sunday excursion.

How thoughtful was the Supreme Architect when he endowed each of us with the ability to make and keep our own individual patchwork quilts. And while He permitted us to keep the pleasant memories—retain the humor of particular incidents—hold fast the beauty of fleeting moments—did you ever stop to give Him thanks that He has always forbade the recall of actual pain?

The Paper Industry Safety Contest

February Scores

67 Mills Have Perfect Record

PERFECT SCORES
Division I — Paper and Pulp Mills

	ENTRANT	MILL	LOCATION
GROUP A	Mead Corporation	Chillicothe	Ohio
	Spruce Falls Power & Paper Co., Ltd.	Kapuskasing	P. Q., Can.
	Canadian International Paper Co.	Gatineau	P. Q., Can.
	Kimberly-Clark Corp.	Falls	Niagara Falls, N. Y.
	Kimberly-Clark Corp.	Kimberly	Wisconsin
GROUP B	International Paper Co.	Otis	Chisholm, Me.
	Brown Paper Mill Co., Inc.	Monroe	Louisiana
	Champion Coated Paper Co.	No. 2	Hamilton, O.
	Champion Coated Paper Co.	No. 1	Hamilton, O.
	Nekoosa-Edwards Paper Co.	Port Edward	Wisconsin
	Dill & Collins Co.	Delaware	Philadelphia
	Fraser Paper, Ltd.	Madawaska	Maine
	International Paper Co.	Fort Edward	New York
	Price Bros. & Co. Ltd.	Donnacona	P. Q., Can.
	Container Corp. of America	Ogden Div.	Chicago
	Continental Paper & Bag Corp.	Rumford	Maine
GROUP C	Rhinelander Paper Co.	Rhinelander	Wisconsin
	Della Paper & Pulp Co	Eau Claire	Wisconsin
	Cornell Wood Prods. Co.	Cornell	Wisconsin
	Detroit Sulphite Pulp & Paper Co.	Delray	Detroit
	Strathmore Paper Co.	West Springfield	Massachusetts
	Ticonderoga Pulp & Paper Co.	Paper	Ticonderoga, N. Y.
	Container Corp. of America	Coated Board	Chicago
	Marinette & Menominee Paper Co.	Park & Victory	Marinette, Wis.
	Finch Pruyn & Co., Inc.	Glens Falls	New York
	International Paper Co.	Piercefield	New York
	Hollingsworth & Vose Co.	East Walpole	Massachusetts
	Pioneer Paper Co	Los Angeles	California
	Container Corp. of America	Cincinnati	Ohio
	Strathmore Paper Co.	Woronoco	Massachusetts
	Bemis Bros. Bag Co.	Div. 1	Peoria, Ill.
	Cons. Water P. & P. Co.	Biron	Wisconsin
	Cons. Water P. & P. Co.	Appleton	Wisconsin
	Adams Bag Co.	Chagrin Falls	Ohio
	Price Bros. & Co. Ltd.	Jonquiere	P. Q., Canada
	Lowe Paper Co.	Ridgefield	New Jersey
	Rising Paper Co.	Housatonic	Massachusetts
	International Paper Co.	Webster	Orono, Me.
	Upson Company	Lockport	New York
	Ticonderoga Pulp & Paper Co.	Pulp	Ticonderoga, N. Y.
	Bedford Pulp & Paper Co.	Big Island	Virginia
	Bird & Son, Inc.	Phillipsdale	Rhode Island
	U. S. Gypsum Co.	Oakfield	New York
	U. S. Gypsum Co.	Gypsum	Ohio
	U. S. Envelope Co.	Morgan Paper	Lititz, Pa.
GROUP D	Gardner & Harvey Co.	No. 2	Middletown, O.
	Continental Paper & Bag Corp.	Ashland	New Hampshire
	Gardner & Harvey Co.	No. 3	Middletown, O.
	U. S. Gypsum Co.	No. Kansas City	Missouri
	International Paper Co.	Livermore	Livermore Falls, Me.
	Hollingsworth & Whitney Co.	Madison	Maine
	Container Corp. of America	Dixon	Carthage, Ind.
	International Paper Co.	Riley	Maine

IMPERFECT SCORES—Division I

	Key	Rank	Points Credit	Points Debit
GROUP A	PA- 8	6	747.584	
	PA-12	7	571.232	
	PA- 3	8	450.112	
	PA-10	9	211.776	
	PA- 5	10		483.792
	PA- 9	11		1461.664
	PA- 4	12		3726.446
GROUP B	PB-26	12	742.592	
	PB-10	13	657.072	
	PB-24	14	653.040	
	PB- 1	15	614.016	
	PB-19	16	567.280	
	PB-27	17	561.024	
	PB-23	18	540.896	
	PB-17	19	518.064	
	PB- 8	20	495.920	
	PB- 3	21	365.344	
	PB-20	22	205.072	
	PB-30	23	147.008	
	PB-28	24	51.472	
	PB- 7	25		59.984
	PB-21	26		282.288
	PB-13	27		290.144
	PB- 6	28		559.904
	PB-11	29		1998.480
	Division II			
	RA- 1	15	859.184	
	RC- 7	16		26.736
	RB- 1	17		291.588
GROUP C	FC-31	30	382.368	
	FC-19	31	371.520	
	FC-30	32	179.648	
	FC-12	33	116.224	
	FC-42	34	82.304	
	FC-20	35		82.240
	FC- 6	36		117.104
	FC-40	37		193.408
	FC-53	38		311.104
	FC-39	39		313.424
	FC- 1	40		405.984
	FC-52	41		496.144
	FC-38	42		503.376
	FC-15	43		813.488
	FC- 7	44		996.704
	FC-21	45		1067.344
	FC-37	46		1070.256
	FC-26	47		1346.336
	FC-36	48		1796.112
	FC-11	49		1888.688
	FC- 8	50		2013.888
	FC-13	51		2164.256
	FC- 2	52		3467.344
GROUP D	PD- 3	9		822.160
	PD-10	10		2050.084

Reports not received:
G. B, PB-29; G. C, PC-41, PC-54.
G. D, PD-11.
Withdrawn: RC-1 (Div. II)

PERFECT SCORES
Division II — Remanufacturing

ENTRANT	MILL	LOCATION
Bryant Paper Co.	Imperial	Kalamazoo, Mich.
Container Corp. of America	35th Street	Chicago
Container Corp. of America	Sefton	Anderson, Ind.
Bird & Son, Inc.	Norwood Roofing	Massachusetts
Gardner & Harvey Co.	Plant No. 4	Middletown, O.
Can. International Paper Co.	Fibre Board	Gatineau, Que., Can.
Container Corp. of America	Cleveland	Ohio
Container Corp. of America	Charleston	West Virginia
Cons. Water P. & P. Co.	Stevens Point	Wisconsin
Bird & Son, Inc.	Chicago Roofing	Chicago
Container Corp. of America	Gibralter	N. Bergen, N. J.
Container Corp. of America	Natick	Massachusetts
Bemis Bros. Bag Co.	East Pepperell	Massachusetts
Container Corp. of America	Fairmont	West Virginia

Safety Engineers Hear Address on Eye Hazards

At a meeting of the American Society of Safety Engineers in New York on March 26, Louis Resnick, director of industrial relations of the National Society for the Prevention of Blindness, gave an address, in which he stated that the industries of America would save $50,000,000 a year and thousands of workers would be saved from blindness, if known methods of eliminating the eye accident hazards were conscientiously observed.

At the same time Mr. Resnick submitted the outline of a program for 100 per cent eye protection in industry, which he stated if applied to any industry would almost entirely eliminate industrial eye accidents, which is now one of the most serious causes of blindness.

The plan for thorough protection of the eyes of factory workers was presented by Mr. Resnick in the form of a questionnaire consisting of 59 questions. Only the plant in which each of these questions can be answered in the affirmative, he said, can claim to be doing all that it is possible for the protection of the eyes of its employees.

Underloaded Mud Safer than Overloaded Rock

Wood piling and engineering skill contribute to make of New Orleans a magic city, rising as it does from foundations of mud. Second to New York in its volume of foreign commerce, its metropolitan skyscrapers are comparable to those of the northern city built on rock. In New York foundation engineers can invariably lay their foundations on solid rock. In New Orleans engineers study the frictional value of the delta soil—that floating sea of muck and mud—and figure just how many long wooden piles must be driven down into the earth in order to support by the friction of wood against mud a 20-story building. There is no attainable underlying stratum of rock; borings down to 1,500 feet have never struck the semblance of rock. Usually they strike saturated soil a few feet down, and a little deeper encounter quicksand. In a recent issue of the **New York Herald Tribune**, J. F. Coleman, retiring president of the American Society of Civil Engineers, told how he harnessed the quicksands of New Orleans, almost exclusively with wood piling. The secret of his success was in building his foundations adequate to their load. "Overload a rock," he said, "and it will crumble like anything else. Test the supporting value of soil, mud, whatever your material, and then allow the requisite margin of safety and you are sure. Our margin of safety is four; that is, if we find by test that a 90-foot pile in a certain soil will support 60 tons, we load it with only 15 tons, and know we are safe. Underloaded mud is a far safer and surer foundation than overloaded rock."—**National Lumber Manufacturers Association.**

Outlook for Kraft Industry Clearing

Leading Interests in Kraft Paper and Bag Industries Combine Efforts in Organization of New Kraft Institute

An important forward step in the stabilization of the kraft paper and bag industries has been effected through the recent organization of the Kraft Institute, composed of leading interests in the kraft paper and grocery bag industries, with R. J. Cullen, of the Southern Kraft Corporation and Continental Paper and Bag Corporation as president. As vice-president and chairman of the Paper Division, D. Clark Everest, of the Tomahawk Kraft Paper Company, Tomahawk, Wis., was chosen. A vice-president and chairman of the Bag Division will be named later.

The secretary of the Kraft Institute is Major O. M. Porter, who is at present secretary of the National Kraft Paper Manufacturers' Association, with offices in the Chanin Building, 122 East 42nd street, New York. Hugh Wright, of the Paper Bag Manufacturers' Institute, 11 West 42nd street, has been named treasurer of the Kraft Institute. The full board of directors has not been chosen. Those named thus far are Mr. Cullen, Mr. Everest, Alfred Bleyer, of Alfred Bleyer & Co., New York, H. L. Brown, of the Brown Paper Mill Company, Inc., West Monroe, La., F. M. Dickinson, of the E. Z. Opener Bag Company, Tuscaloosa, Ala. Representatives will also be appointed from the Continental Illinois Bank & Trust Co. and the Chase National Bank.

Treasurer Wright of the Kraft Institute informed a representative of THE PAPER INDUSTRY that fully 70 per cent of the productive capacity of both the kraft paper and bag industries was represented at the three-day session in St. Louis in which the institute was formed and it is expected that 90 per cent of the industries will ultimately be represented in the organization.

The institute's structure provides for two separate but co-ordinating divisions, representing the kraft paper manufacturers and the bag manufacturers. Each division will have its own directorate and manager, with their common problems co-ordinated by the executive committee of the institute, whose membership will represent both divisions.

In addition to serving as a clearing house for information regarding conditions in the kraft paper and bag industries, the institute will develop accurate current statistical data and such other information as will be of use to the executives of these basic industries in the guidance of their own affairs.

Report on Fourdrinier Wire Investigation

The Tariff Commission has recently announced reports on four investigations approved by the President. All but one of these investigations were ordered in response to Senate Resolutions. The President has proclaimed the rates of duty found by the Commission to be necessary to equalize foreign and domestic costs of production. A summary of the report on fourdrinier wires and cylinder wires, and wire used in their manufacture is as follows:

These wires which are used as filtering mediums on papermaking machines are made of finely woven brass or bronze wire cloth. The meshes in fourdrinier wires usually run from 60 to 80 per lineal inch; the meshes in cylinder wires or facings usually run 60 and coarser. Fourdrinier wires are generally used in the production of the finer grades of paper, such as tissue, newsprint and book paper. Cylinder wires are largely used in the production of pasteboard, wrapping paper, and similar relatively coarse products. Although these wires are an essential part of papermaking machines, they are not an important factor in the total cost of producing paper, since over a ton of paper is produced on the average to every square foot of wire used. The commission's investigation, which covered the year 1929, discloses the fact that Germany is the chief competing country. Substantial quantities of fourdrinier wires also come from Austria. Importations from other countries are comparatively insignificant. The importations of fourdrinier wires during the year 1929, when the 30 per cent duty in the act of 1922 was in effect, were approximately 18 per cent of domestic consumption; importations of cylinder wires were relatively unimportant. The rate of duty under the act of 1930 was 50 per cent and this rate has, in accordance with the commission's report, been increased by proclamation of the President to 75 per cent on all fourdrinier wires, and on cylinder wires above 55 mesh, and on woven wire cloth suitable for use in the manufacture of fourdrinier and cylinder wires, if having more than 55 meshes per lineal inch. This increase corresponds to the difference in costs of production found to exist between Germany and the United States. The commission makes no finding with respect to cylinder wires and woven wire cloth having not more than 55 meshes per lineal inch.

Educational Course at Chemical Industries Exposition

At the forthcoming Thirteenth Exposition of Chemical Industries which opens on Monday, May 4, at the Grand Central Palace, New York, an educational adjunct of great interest and value will be a Students' Course of Lectures under the direction of Dr. W. T. Read, of Rutgers University.

The first course in elementary chemical engineering will provide a general survey of the field of chemical engineering, with lectures embracing a comparison of unit operations and processes, handling of materials, transfer of heat, materials of construction, typical unit operations, and a consideration of chemical engineering as a career, the last named subject to be treated by Dr. John C. Olsen, president of the American Institute of Chemical Engineers and professor of Chemical Engineering at the Brooklyn Polytechnic Institute. Lectures and addresses in the elementary course will be given on Monday afternoon at three o'clock, and on Tuesday morning at nine o'clock.

The second course, one on advanced chemical engineering, will be given on Wednesday and Thursday mornings at nine o'clock. This course is intended for advanced students of chemical engineering and for younger chemical engineers in industry. Lectures will be given by men prominently identified with manufacturing industries and by teachers of chemical engineering in the universities. Thus Prof. Walter L. Badger, University of Michigan, will treat of progress in vaporization processes, and recent contributions of science and invention to chemical engineering will form the topic for discussion arranged by Prof. James R. Withrow, of Ohio State University. In a class for the study of high pressure in chemical engineering Prof. N. W. Krase, Department of Chemistry, University of Illinois, will give a general survey of high pressure progress, and Prof. B. F. Dodge, Department of Chemical Engineering, Yale University, will lecture on the thermodynamics of high pressure equilibria. Hydrogenation and nitrogen fixation are to be subjects of lecture and discussion on Thursday by representatives of engineering corporations who are authorities in this field of chemical activity.

A course in industrial chemistry designed to survey the services and training of chemists for modern industry will be given on Friday and Saturday, May 8 and 9, beginning at nine o'clock a. m. In this course a study will be made of the career of a chemist and his work in the plant, in co-operation with chemical engineers, in consulting practice and in the legal side of chemical industry, followed by lectures on the training of chemists in the university, in the plant, in industrial projects, and there will be a discussion of the future of chemistry.

Among those who are scheduled to lecture on industrial

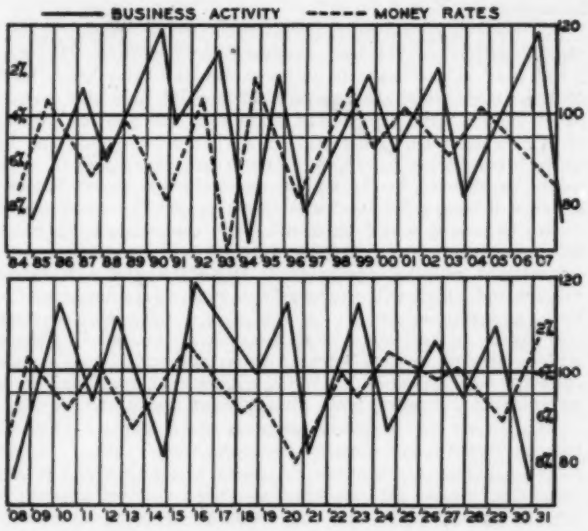
chemistry are Frank C. Whitmore, dean of the School of Physics and Chemistry, Pennsylvania State College; Prof. W. K. Lewis, Massachusetts Institute of Technology, and other well-known educators and industrial chemists.

Special tickets of admission to the courses will be sent upon application to the Thirteenth Exposition of Chemical Industries, Grand Central Palace, New York.

Looking Ahead

Alvin T. Simonds, president of Simonds Saw and Steel Co., Fitchburg, Mass., and noted economist, presented in the March, 1931 issue of his bulletin entitled "Looking Ahead," the accompanying chart which exhibits the major swing in money rates and business activity since 1884. The following statement of extraordinary importance is emphasized in connection therewith:

"During the past 50 years, major swings in money rates have forecast accurately months in advance, every major



Notice that each rising line in Money Rates (the broken line) is approximately paralleled some months later by a rising line (the solid line) in Business Activity. Notice that each falling line in Money Rates is approximately paralleled some months later by a falling line in Business Activity. Thus the turns in Money Rates have indicated months in advance coming turns in Business Activity. Money Rates are commercial paper rates, New York. The light solid horizontal line is 5%, so often considered normal for these rates. The data is from the Annalist.

See January 16, 1931 issue

swing in business activity, i.e. 14 upward swings including the boom of 1929 and 14 downward swings including the depression of 1930. Sales planning, production planning and budgeting could have been based upon these forecasts without an error in the forecast in any instance."

Mr. Simonds and his assistant, John G. Thompson, have for over ten years been studying carefully and intensively every possible phase of the relationship between money rates, business activity, security prices and commodity prices. For three years, they have been broadcasting the proof of the statement that since the war every major swing in business activity has been forecast months in advance by major swings in money rates. "The most convincing proof that we have ever given," Mr. Simonds states, "has been the accurate forecasts published months in advance. Every major swing including the impending revival through 1931 has been forecast correctly. This revival will take place unless the unfailing forecaster of the past 50 years fails to function as it has for every major swing during that time."

Mr. Thompson is at present preparing a book to be published in the fall by Harper and Brothers, which Mr. Simonds states will announce their conclusions and apply them in forecasting general business activity, the production of several major industries, commodity prices and security prices. Beginning with the May, 1931 issue, there will be a nominal annual charge of two dollars for "Looking Ahead," which is "not published for profit in dollars, but to increase general economic intelligence."

Wilburt L. Campbell with Mine and Smelter

The Mine and Smelter Supply Co., Denver, Colo., announces that the rapid development of the Marcy Rod Mill in the paper industry has necessitated the expansion of its paper mill division, and that Wilburt L. Campbell, widely known in the New England paper industry, has just been added to the technical staff of this division.

Mr. Campbell is a native of New England and began his career in the paper industry as screen boy in the Berlin, N. H. plant of the Brown Company, where he was employed for 18 years, working his way up. He was successively employed by the Deerfield Valley Paper Co., Monroe Bridge, Mass., as machine tender; Warren Mfg. Company at Milford, N. J., tour foreman; Nashua River Paper Co., East Pepperell, as day boss; and St. Regis Paper Co., Oswego, N. Y., as mill superintendent. Since leaving the latter connection, he has engaged in paper research work for a number of prominent paper manufacturers.

Mr. Campbell will maintain his headquarters at the company's paper laboratory in Denver where he will collaborate with O. H. Johnson, manager, and Sidney D. Wells, consulting engineer.

Announcement is made that the General Refractories Co., Philadelphia, Pa., has recently appointed the Davis Coal and Supply Co., of Reading, Pa., as distributor of Grefco and Standard High Temperature mortars, and Pennsylvania fire clay brick in the territory consisting of Schuylkill, Berks, Lebanon counties and the northern part of Lancaster country.

Enterprise Synchronized Compensating Drive

The Enterprise Machine Co., Middletown, Ohio, has recently developed and put in operation a synchronized compensating drive, for which patents have been applied.

The Enterprise Drive is built on the same principle as the automobile differential and is designed for service on presses and drives for both cylinder and fourdrinier machines. It may be used on a 64-inch cylinder and 12-inch coucher, with

Synchronized compensating drive for press rolls. Photo shows drive without oil housing

absolute certainty that the peripheral speeds will be identical. On presses, the rolls may be changed or ground, and this same drive without any changes whatever, will give the same surface speed to both rolls.

Both rolls are driven through the synchronized unit, the top roll being connected by a flexible coupling, allowing this roll to be changed without affecting the speed of the roll in relation to bottom roll.

The manufacturers claim this new drive offers immense savings to felts and that the corrugating of rubber rolls is eliminated.

Institute to Have New Building

Rapid Growth of Institute of Paper Chemistry at Appleton Necessitates Larger Quarters

CONSTRUCTION has begun on the new building to house the Institute of Paper Chemistry, the graduate school affiliated with Lawrence college. The Ben B. Ganther Company of Oshkosh has been awarded the general contract. The building is scheduled to be completed by August 1, leaving ample time to install equipment before the opening of the new school year.

Erection of the building at this time was made imperative because the work of the institution has grown so rapidly that the quarters in the new Alexander Gymnasium which were expected to be adequate for another year are already overcrowded. The Institute was opened in February, 1930, and now has seventeen students. There are four full-time members of the staff and five part-time. With the admission of a new class for next fall and with the addition of new members of the staff and the installation of considerable amounts of additional equipment new quarters were imperative.

The construction of the building is made possible at this time by the receipt of donations from a large number of individuals and groups most of whom have asked that their gifts be kept anonymous. In addition, equipment is being furnished by many manufacturers of paper mill and paper testing equipment in the form of donations to the Institute. The building was designed by Orbison & Orbison of Appleton, who have designed many paper mills. Associated with them as consultant was Chester Wolcott, architect, of Chicago. Both of these firms contributed their services in the design of the building. Specifications for the lighting, plumbing, heating, and ventilating equipment are now being drawn and contracts on these several items will be let in the near future.

The new building will be erected on property acquired by Lawrence college three years ago for its new south campus. The exterior will be of Lannon stone with Indiana limestone trim, being uniform in this respect with the new Alexander gymnasium erected in 1929. It is to be two stories and basement. The front will face 115 feet on East South River street and will be fifty feet deep. There will be two wings, the one at the east 84 feet, and the westward wing 63 feet in length. All the partitions will be movable. In fact the entire interior is designed to give the greatest degree of flexibility in arrangement.

The plot of land selected for the building contains over six acres, leaving ample room for expansion, and the construction is such, moreover, that the building can readily be enlarged. Its present floor space is approximately 18,000 square feet which should be ample for the next two or three years.

Plan for New Building

The first floor will have offices for the staff, conference rooms, an assembly room and the library. The west wing will house the library which is now the finest collection of books and periodicals on the subject of papermaking to be found anywhere in this country.

The second floor will be devoted to laboratories. The entire east wing will be devoted to work in pulp and paper testing. In this section in addition to two large laboratories are three small individual research laboratories. One of the larger laboratories will be devoted to pulp and paper testing, the other to the development of special research in these fields. The central portion of this floor is devoted to laboratories for cellulose and organic chemistry. There will be one student research laboratory to accommodate 17 students, a combustion laboratory, a weighing room, and a small individual research laboratory and adjoining office for the professor of organic chemistry. The west wing is to be devoted to colloid chemistry. It provides a large student laboratory, an individual research laboratory and adjoining office for the professor of colloid chemistry. There are two dark rooms, one for photometric work, and the second for photographic work. One other large research laboratory is provided on this floor for purposes of expansion. It is so arranged as to permit the use of small digesters, beaters, or any other small apparatus.

The laboratories on the second floor are serviced from a second floor storeroom, which has provision for an electric hoist connecting this room with the main storeroom in the basement.

The laboratory furniture to be used in the organic laboratories will be of the best fireproof construction. The material used in the desks is a copper bearing alloy steel, lead coated, upon which three coats of special acid and alkali proof enamel have been baked. The tops and shelves will be of Alberene stone. This will insure fireproof conditions in those laboratories in which there is any fire hazard. The tables to be used in the colloid and pulp and paper laboratories will have solid steel end supports and Presdwood tops.

The basement and first floor of the east wing is to comprise one large room, 20 feet high. It will house the semi-commercial pulping equipment. Digesters are now being constructed which will produce 50 pounds of air-dry sulphite, soda, and sulphate pulp. A rag boiler which will produce 150 pounds of half stock is all ready for installation. There will be several beaters varying from one pound and a half capacity to 25 pounds capacity, a series of sheetmoulds, a wet machine, chipper, blow pits, storage tanks and the like.

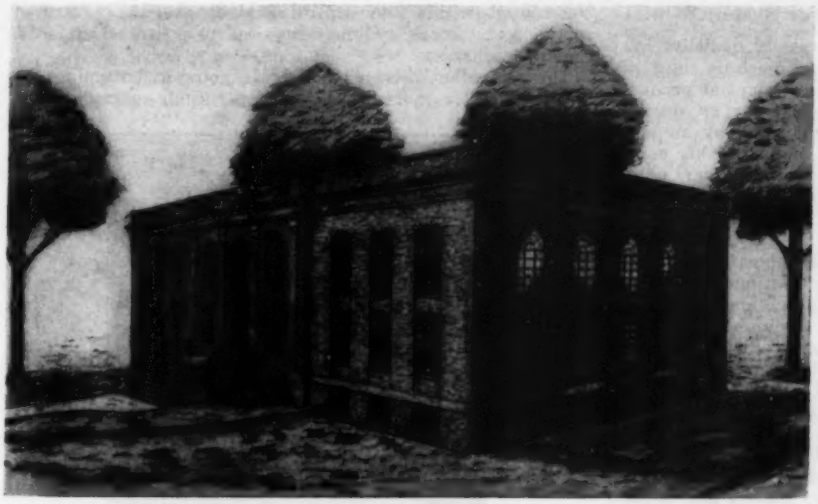
At the rear will be the boiler room and a machine shop for the construction and repair of equipment.

A large constant humidity room is being provided in the basement, where all quantitative paper testing operations will be carried out. The room will be of sufficient size to accommodate a number of students. In addition to this laboratory there will be a research laboratory devoted to the use of the Masonite fellow, where high pressure hot presses, special sheetmolds and the like will be provided. A room for the storage of inflammable chemicals is being constructed outside the building under the front porch. This will be separated from the building proper by an adequate fire door which will further insure protection of the building from fire. The main storeroom is likewise located in the basement. A concrete ramp will be constructed to make it possible to unload large crates directly from the outside.

A National Institution

The Institute of Paper Chemistry was launched by a group of Wisconsin mills one and one-half years ago, but it was with no purpose to make it a Wisconsin institution. Ninety per cent of the industry in that state entered into contracts in order to guarantee a minimum budget for the institution for a period of five years. No appeal was made to the industries outside of the state to support the institution before the project was actually under way. It was intended from the outset, however, to be a national institution. There was no competition in the field inasmuch as no other institution was offering a complete program of work in this field at the graduate level. The central location of Appleton, the fact that within a radius of seven miles most forms of pulp and paper making and paper conversion were represented, make it an ideal position.

The first way in which the Institute achieved its purpose of becoming a national institution was in the composition of its student body representative of the whole country. This policy met with the greatest possible success. There is only one Wisconsin student and there are students from Cali-



Prospective view of new building to house Institute of Paper Chemistry at Appleton, Wis.

fornia, Massachusetts, Maine, Washington, Iowa, Ohio, Indiana, Illinois, Pennsylvania, and Connecticut. These students understand definitely when they come that upon receiving their degrees, their services are available not only to member mills but are available to any paper manufacturers in a perfectly free market.

The second point at which the Institute received nation wide recognition came from the auxiliary industries, manufacturers of paper mill machinery and equipment and those which supply materials of one kind or another to the industry. Gifts of experimental equipment have been forthcoming from a wide variety of manufacturers and cash contributions toward the construction of the building from many others. A number of student fellowships were established by various corporations and the number of problems presented to the Institute through research fellowships has exceeded all expectations.

At the last annual meeting in February, the American Paper and Pulp Association adopted the following resolution, thus giving specific recognition of this enterprise on the part of a national association:

Whereas, the paper industry has suffered in the past, from a lack of men, trained in scientific subjects pertaining to pulpwood, pulp and paper, and

Whereas, it is realized that technical men, adequately trained both practically and academically, are and can be an increasingly important factor in the future development of the paper industry, and

Whereas, the Institute of Paper Chemistry at Appleton, Wisconsin, a graduate school for the training and development of technical workers in the field of paper chemistry and technology organized in 1929 by a group of interested and progressive paper manufacturers draws its students from all parts of the country and through its program can render a distinct service to all branches of the industry;

Be It Resolved, That the American Paper and Pulp Association endorses the work of the Institute of Paper Chemistry and commends its program to all those engaged in or associated with the paper and pulp industry as being worthy of consideration and financial support.

The Technical Association of the Pulp and Paper Industry has also recognized the Institute and has made a contribution to its work. Other national organizations of various sections of the industry have similar action in contemplation.

A number of individuals realizing that one of the most important and at the same time one of the most expensive features of such an organization would be the library, contributed large sums to make possible the rapid accumulation of a reference library. A monthly library bulletin is published and sent to members and to others by subscription. The abstracting is of periodicals printed not only in English but in foreign languages. The library has also made up special bibliographies and conducts research for participating mills. While the principal function of the Institute, therefore, is to train students for the industry in order that the technical equipment of its personnel may be steadily improved, its research activities are also important and its library services can have a tremendous value to the industry as soon as mills put themselves in a position to take advantage of it.

The United States was the last great country to establish a nationally recognized school at post graduate level for this industry. The rapid transformation taking place within the industry through the last ten years has made the desirability of this institution more and more clear, and it is to be hoped that the support of the enterprise will not be left to the Wisconsin manufacturers and a few others, but that the industry as a whole throughout the country will take an active part in its development, progress, and management.

The officers of the Institute are: Ernst Mahler, president; D. C. Everest, vice-president; Henry M. Wriston, director; Otto Kress, technical director; and Westbrook Steele, executive secretary, who has been maintaining the contacts of the Institute with the industry at large. Other trustees are: Monroe A. Wertheimer, Dan K. Brown, Lewis M. Alexander, and Hugh Strange.

Henry Clay Graton

Henry Clay Graton, one of the founders of Graton & Knight Company, well-known leather belting manufacturers of Worcester, Mass., passed away March 20. On July 10, of this year, Mr. Graton would have been 101 years of age.

Born July 10, 1830 in Leicester, Massachusetts, Mr. Graton received his early education in the public schools of his native town. In February, 1851, at the age of 21, Mr. Graton and his boyhood friend, Joseph A. Knight, resigned their positions with T. K. Earle & Company, card clothing manufacturers, purchased that company's belt shop and formed a partnership that resulted in the business now conducted under the incorporated name of Graton & Knight Company, Worcester, Massachusetts.

During his long association with the company, Mr. Graton was most active in the sales end of the business. Selling had a peculiar fascination for him and when the little shop lacked orders he would leave the bench, take his grip, and start on a selling trip, traveling by train or on foot as conditions necessitated.

For more than two-thirds of a century Mr. Graton directed the policies of the Graton & Knight Company, steadily forging ahead against keen competition, and constantly keeping before him those high ideals and straightforward commercial principles which he inherited from his ancestors.

Although he has not been actively engaged in the business for the last ten years he has always maintained a keen interest in it. Only last year he evidenced this interest by opening the General Sales Convention with a warm greeting to the men and a most interesting word picture of selling as it was practiced when he started on the road some 70 odd years before.

A man of keen intellect, indomitable courage, high integrity and sympathetic understanding, Mr. Graton was a fine example of the highest type of American business man.

The Champion Paper Box Corporation of Fall River, Mass., has been incorporated by New York persons. The president is B. H. Whitestone and the treasurer E. M. Jaffe.

The Lewellen Jordan Control System

Every paper maker appreciates the necessity of delivering uniform stock in adequate quantity to the machine chest of a paper machine. In many mills the final attempt at producing uniform stock for a paper machine is made by setting each jordan to some definite point as indicated by an ammeter, and maintaining the load on the motor at this point by more or less constant adjustment of the jordan plug. Such a method of control has not proven entirely satisfactory, since hand adjustment at best is only correct at the moment that adjustment is made.

The Lewellen Manufacturing Co. of Columbus, Ind., realizing the need for an automatic means to continuously maintain a uniform load on the jordan motor, undertook the development of such a control system a number of years ago. A perfected design was produced about two years ago after much research and experimentation. No public announcement was made at the time, as it was thought advisable to study the behavior of the perfected system in actual operation. This design has now been in operation for about 22 months with no interruptions of any kind due to failure or defects in the control mechanism and the manufacturers are prepared to furnish the equipment to control any motor driven jordan.

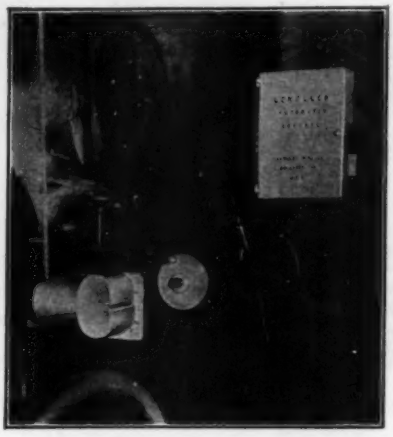
The Lewellen Jordan Control System, as at present developed, consists of a combined arrangement of a wattmeter; current transformer; a control cabinet enclosing relays, switches, and controller; and a motor driven unit connected to the jordan plug adjusting screw. The arrangement or general grouping of these several units in combination is clearly illustrated in the accompanying schematic diagram.

The wattmeter, operated from the current transformer which in turn is connected to the jordan power line is a standard unit designed to permit setting for any desired load. A simple turn of a thumbscrew on the outside of the wattmeter case positions the load mechanism with the load being indicated on the wattmeter scale by a pointer. Another arrangement in the wattmeter permits adjustment for sensitiveness of control, its sensitiveness setting being determined by the uniformity of the stock preparation before it reaches the jordan.

The current transformer is of the conventional type and is installed in series with two of the phases of the jordan motor. The secondary terminals of the transformer are connected to the wattmeter.

Enclosed within the control cabinet are the controller, relays, and various switches required to operate the jordan control mechanism.

The controller, driven by a small motor and running continuously while the control is in operation, continually engages electrical contacts in the control circuit. The length of time between the contacts and the time interval that the contacts are in engagement are both adjustable.

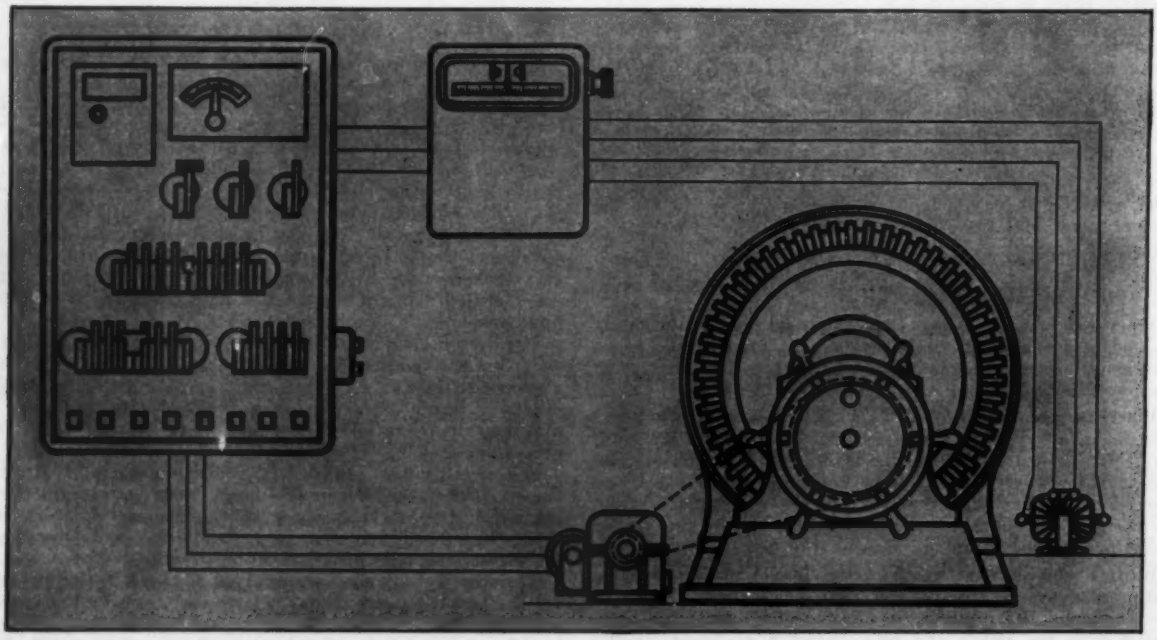


Motor unit, at left of picture, mounted on jordan

An interval of ten seconds between contacts and a duration of contact of one second has been found to produce very satisfactory control. It simply means that an adjustment is made on the jordan plug every ten seconds if a condition in the stock demands it. As long as all conditions remain uniform, no adjustment will be effected to the jordan plug.

The motor unit operating through a speed reducer is connected to the jordan plug adjusting screw. A chain and sprocket arrangement is suggested as the preferable method for making this connection. Such an arrangement permits the removal of the jordan plug without disturbing the motor unit.

Limit switches provided for the motor unit stop the opera-



Schematic diagram of Lewellen Jordan Control System. Motor unit at lower left of jordan base; current transformer at right. Wattmeter at top center; controller in upper right corner of control cabinet

tion of the control whenever the plug of the jordan reaches a predetermined position in either direction.

The installation of the equipment constituting the Lewellen Jordan Control System may be made for the most part while the jordan to which it is being connected is in operation. The

Current transformer installed at lower right of 250 hp. synchronous motor driving jordan

only work that must be done with the jordan not in operation is the making of the electrical connections to the main jordan motor.

After the system has been installed, the jordan plug is set by hand to produce proper stock hydration. The wattmeter is then set for the desired load, and the control placed in operation by pushing the start button located on the side of the control cabinet. Once in operation, the system automatically adjusts the jordan plug to compensate for any changes in the stock reaching the jordan.

Viggo Drewsen

Address Before the Royal Norwegian Society of Sciences

By PROF. S. SCHMIDT-NIELSEN

Oslo, Norway

WHEN Dr. Viggo Drewsen passed away on the 18th of May, 1930, our society suffered the loss of a highly esteemed member. He had a name renowned in pure organic chemistry as well as in the cellulose industry.

Viggo Beutner Drewsen was born in Holmengaard near Copenhagen on the 13th of April, 1858. His parents moved the same year to Bentse Brug in Oslo, where Waldemar Drewsen, his father, was the manager of this, the oldest paper mill in our country. Young Viggo was therefore brought up in Norway. He first attended the Kristiana Public School and was graduated from the Cathedral High School in 1875. He then took a course in chemistry at the University of Oslo under Professor Waage for one year, but continued and finished his studies in Germany, first at the laboratory of Fresenius in Wiesbaden, and later at the University of Munich. He was private assistant to Professor Fresenius for one year and was also for one year Prof. Baeyer's private assistant. In 1881 he received the degree of Ph.D. in Munich for his work on paranitro-cinnamic acid.

From September, 1882, Drewsen was a teacher in chemistry at the Trondhjem Technical High School. On account of the absence of Director Schoyen during the assembly of the Storthing, Drewsen also acted as director of chemical technology, having charge of the laboratory. When Schoyen moved to Oslo in 1887 to become an "apotheker," Drewsen was unanimously nominated to the office of director, both by the Board of Directors of the Trondhjem Technical High School and by the Trondhjem town council. The minister of the newly formed Department of Labor, Mr. Astrup, however, appointed someone else despite the opposition of several of the other cabinet ministers.

This failure to appoint Drewsen provoked discontent among a great many people and led Drewsen away from pure science to industrial work. Notwithstanding the fact that Drewsen was not an engineer, his activities in industrial chemistry brought him, perhaps, greater results and also better working conditions than a scientist usually has, though the injustice done him rankled and was never forgotten.

When Drewsen left Trondhjem during the summer of 1887, he went to Bentse Brug, Oslo, where his older brother Aage had succeeded his father as the manager of the paper mill there. Here, Viggo Drewsen, with his usual energy, went ahead studying the problems of pulp and paper manufacture. Already in the fall of 1887 he was granted his first cellulose patent. In January, 1888, he was appointed research chemist at Böhnsdalen Mills, a position which he held until 1894, when he decided to go to the United States. I will here emphasize the excellent work Drewsen did at Böhnsdalen. It showed fully what a well trained chemist could do for an industry. In this connection I also want to mention Bache-Wiigs' foresight in these early years in initiating research work at their mills.

In the spring of 1894 Drewsen moved, as I mentioned, to the United States where his brother Aage had made his home since 1889, principally to exploit a number of Viggo Drewsen's patents.

Viggo Drewsen's first position in the United States was as superintendent of the Glens Falls Paper Company's plant at Fort Edward, N. Y., but he soon started his own business as a consulting chemist for the paper and pulp industry, organizing the Drewsen Company of New York. Later on he accepted a retainer as consulting chemist for the West Virginia Pulp and Paper Company, and from May, 1910, up to the time of his death, 20 years later, he was in charge of the research laboratories of this company. It was endocarditis which caused his death after eight months of illness. His wife Gudrun, née Löchen, a daughter of Herman Löchen, of Sundnes, and Anne Margrethe Jenssen, together with two daughters and one son survive him.

In characterizing Drewsen's activities, I may say that they cover, as above mentioned, two essentially different fields, pure organic chemistry—his first love—and his work in the cellulose industry, the work of his ripe manhood. In both fields, he has raised for himself enduring monuments.

Synthesis of Indigo Achieved

I may say that it was a matter of course that Drewsen happened into the indigo problems while in Munich. Baeyer had after many years of work in 1878 succeeded in producing synthetic indigo, from phenylacetic acid (fenyleddiksyre), as, in 1880, he brought forth the first technically possible synthesis from cinnamic acid (kanelsyre); but the difficult and important indigo question was not thereby solved. Drewsen succeeded, quite independently, in finding a technically possible synthesis, which was quite superior to Baeyer's; he used orthonitrobenzaldehyde as the starting material. This gives, dissolved in acetone, with added alkali, perfect indigo. Great expectations followed Drewsen's synthesis. It was taken up by the Badische Anilin und Sodafabrik, before it was described in the scientific press. The German patent (No. 19768) is dated February 24, 1882, the four American patents, May 9, 1882, while the account of it in the Berliner **Berichte** was not published until December 2, 1882. This new, elegant and technically useful synthesis made the name of the then 24-year-old Drewsen known all over the world. The synthesis did not, however, achieve the practical and economical importance which had been expected, because in the preparation of nitro-benzaldehyde it appears that a preponderance of the para compound is formed, whereas it is the ortho compound which leads to indigo.

During his stay in Trondhjem, Drewsen worked hard to solve the problem of finding an effective method for producing ortho-nitro benzaldehyde; however, Heumann's synthesis (1890) made this work superfluous. In Trondhjem, Drewsen finished his work on chinaldin. He was loved by his pupils who gave him high credit for his extensive knowledge, his straightforwardness and charming personality.

After Drewsen engaged in industry, he naturally did not publish any purely scientific works. He did, however, contribute a few articles on cellulose to paper industry period-

icals. On the other hand, he took out a great number of patents, which give us a significant impression of his activity and versatility in the paper industry. In the United States, Drewsen took out 43 patents, not counting four on indigo. Here in Norway, he was granted nine patents, but none on the indigo synthesis. Of German patents he has, so far as I can ascertain, only five. Strangely enough, the indigo patent was issued in the name of Badische.

Drewsen's Service to Pulp Industry Shown in Many Patents

It is outside our scope here to go into the details of Drewsen's many patents. They show that his work in the pulp industry mainly has embraced the recovery of sulphurous acid gas from the sulphite process, utilization of the spent liquor, utilization of pyrites in place of sulphur, invention of new cooking methods, and using raw materials other than wood.

When Drewsen came to Böhnsdalen, this mill, as well as all other mills throughout the world, did not recover the sulphur dioxide which escapes from the digesters. Drewsen collected and led the gas into fresh cooking liquor, and obtained in this way a much stronger cooking liquor than was possible with any previously used methods. In this way he not only economized on sulphur, but also reduced the cooking time, and produced a better pulp, and one easier to bleach, so there was also effected a saving in chlorinated lime. This method was sold to some Scandinavian mills, Union Company for instance. In the United States it was introduced in upwards of 30 mills. In course of time, pulp mills all over the world employed Drewsen's method of recovering the gas from digesters, although nobody, or even few persons today, remembers that this great invention was due to Drewsen.

The cooking of sulphite pulp is, as we know, based on the use of calcium bisulphite in the cooking liquor. Already at Böhnsdalen, Drewsen succeeded in using sodium bisulphite by mixing sodium sulphate (Glauber's salt) with the cooking liquor so that a change of bases was effected. In its original form the method was not quite efficient notwithstanding its manifest advantages. The liquor became saturated with gypsum and in addition gypsum is formed as a by-product which could not be sold. In the meantime, the use of soda in the cooking liquor seemed to have a great future. During his last years Drewsen worked on a monosulphite process, with either sodium or magnesium as the base, and he considered this his most important invention. He expected a great deal of future utility from the production of sodium sulphite from sodium sulphide, through the incineration of the spent liquor.

At Böhnsdalen, Drewsen made some successful researches on the after-bleaching of pulp with potassium permanganate. It was said of Drewsen by those who worked with him at Böhnsdalen, that manufacturing processes were improved after he came there, his work leading to improved administration and knowledge.

Whereas the black liquor is collected, burned and the chemicals recovered in soda and sulphate pulp mills, most sulphite pulp mills allow their spent liquors to go into the river. In this way both lime and sulphur are lost, and above all, organic matter, equivalent to half the weight of the wood, allowed to go to waste. Many have tried to find a method to utilize the sulphite spent liquor, and Drewsen was one of them. According to his patent of 1891, he recovered the excess sulphurous acid by precipitating with lime under elevated temperatures and treating the precipitate with sulphurous acid, in which manner he obtained a calcium bisulphite solution for reuse in the process. It ought to be remembered here, that a fractionated lime recovery is actually now in use in the United States, which is evidence of Drewsen's foresight. In his later patents, Drewsen brought forth his methods of utilizing the organic constituents of the liquor, among others to produce acetone, alcohols, etc., and to recover lime and other alkalies from the concentrated liquor by distillation with superheated steam. He suggested a similar process for the recovery of black liquor. Both ideas have since been developed by others. One of Drewsen's sulphite liquor patents aims at the recovery of tanning material. But Drewsen himself came to the conclusion that the time was not yet ripe for any organic chemical industry based on sulphite liquor recovery; that one had to be satisfied with its use as fuel and the reclamation of the chemicals. But much work has yet to be done toward this accomplishment.

As the forests are used up and the price of wood advances, it is necessary to look around for other economically possible raw fibrous materials. There Drewsen did meritorious pioneer work. Already in 1903 he had a method ready for the manufacture of paper from cornstalks, straw, etc. At the Cumberland Mills of S. D. Warren Co., he produced a cornstalk pulp $10 per ton cheaper than soda cellulose from wood (see *The Paper Mill*, 1903, No. 38). This method has not been used very much in the United States for the reason perhaps that cereal straws are very voluminous raw materials, which involves expense in gathering, transporting and storing at the mills; but their time will come. Drewsen at one time put in a great deal of work on his pentasulphide method, based on cooking with lime and an excess of free sulphur, a theoretically interesting process, both cheap and effective, but it smells. There is, however, the possibility of its coming into use again.

In the meantime, Drewsen became more and more convinced that the cellulose cooking of the future would have to be based on the use of monosulphites, that is, an alkaline, reducing cooking liquor. He had taken out a number of patents dealing with the production of alkaline monosulphite solutions with sodium, and magnesium as bases, and for the reclamation of the spent liquor. The use of these comparatively expensive bases for the cooking of cellulose must be based on the possibility of chemical recovery. These works of Drewsen's will surely be of importance in the future.

It is of special interest for our country that Drewsen after his researches in 1898-99 was instrumental in the introduction of pyrites in the cellulose industry as a source of sulphurous acid; with the use of pyrites it became possible to burn our own low priced pyrites in place of imported sulphur. In this way also technical advantages were gained in the cooking process.

Other Contributions to Science and Industry

There is still a great deal of Drewsen's work that ought to be mentioned, for instance that during the World war he treated sulphite and sulphate pulp to make them easy of nitration, so that they could take the place of cotton linters in the manufacture of gun cotton and smokeless powder. He also suggested the collection of carbon dioxide from the smoke stacks of power plants for use in industry, as for example dry ice.

This incomplete report which I have been able to give will reveal the fact that for more than a generation Drewsen has been one of the leading forces in the pulp industry. He was therefore made an honorary member of the German Society of Paper and Pulp Chemists and Engineers.

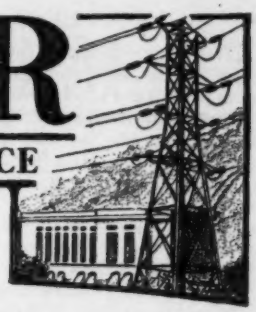
When our technical university was established, it was quite natural for people to think that Drewsen ought to return to his country as a professor. The Premier as well as the ministers of education, churches and others made inquiries of him through third persons, but he did not desire it. Perhaps he wondered whether other things than the question of ability would arise and frustrate him once more. At any rate it is without doubt a great loss for our country that Drewsen's work for more than a generation was done outside of its boundaries.

It was naturally a matter of course that when our Society was reorganized, Drewsen was chosen as a member of its division of Natural Science under which the technical sciences belong. I know as a fact that this touched him deeply, because this told him that in spite of everything his work had not been forgotten in the city where he had spent happy years in his youth. Honored be the memory of Viggo Drewsen in our society!

Linton Bros. & Co., bristol manufacturers of Fitchburg, Mass., are requesting merchants throughout the country to acquire fine specimens of printed work done on their papers which will be collected in a portfolio for later distribution.

POWER

GENERATION - UTILIZATION - MAINTENANCE



By W. S. JOULE

This section turns the searchlight upon power and its allied problems. It shows up big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

Judging Furnace Temperatures

IN connection with the operation of the furnaces under boilers, a question often comes up, "how hot is that fire?" When a CO_2 or carbon dioxide recorder or indicator instrument is available, the combustion efficiency may be determined from the knowledge of the coal or guessed fairly closely even without knowledge of the coal analysis. It is then possible to calculate the temperature, although usually this is not an easy thing to do. So we still have the question, "what is the temperature of the fire?"

There is, of course, a relation between temperature and color just as there is a relation between color and CO_2. Some people are color blind; so many factors may interfere with observation, even of the skilled observer, that judging temperature by color is at best a very approximate method. The heat emitted and the length of time the furnace is watched are also factors that make the color method very unreliable. A CO_2 instrument is usually accurate to within one per cent and often closer. Ability to differentiate between two colors by the ordinary person is certainly not more accurate than within 1,500 deg. F.—corresponding to a CO_2 difference of at least one per cent CO_2 at the lower temperatures and two or three per cent CO_2 at the higher temperatures. The following table shows the approximate relation between CO_2, temperature and color of fire. This is only approximate, but shows the relationship between CO_2 and temperature, while it also shows that judging temperatures by the eye cannot be very accurate.

Approx. Temp. Deg. F.	Color of Fire	CO_2 %
900	Dark red	2
1000	Dull red	3
1150	Dull cherry	5
1400	Bright cherry red	7
1750	Light orange	9
2200	White	13
2600	Bright white	14

Boiler Trouble in the Paper Industry

ACCORDING to the annual report of the Hartford Steam Boiler Inspection and Insurance Company, there were a total of 1,284 accidents to boilers and pressure vessels during 1929. These caused the deaths of 89 persons and injury to 254. Of these 1,284 accidents, 618 occurred to heating plants and heating installations. Table 1 shows the number of times trouble was encountered with boilers in different industries, only the industries having the most trouble being given. It will be noticed that the paper and pulp industry is mentioned 28 times, showing that this same number of accidents occurred. This does not mean, however, that this number of paper and pulp mills experience trouble because in one case, one experienced five distinct and different accidents on different days, while another mill experienced three accidents at different times and another two accidents. Table 2 shows the different classes of trouble comprising these 28 accidents. In passing, it is interesting to note that no fatal accidents occurred and no serious injury was suffered by men during 1929.

In view of the fact that the pulp mills usually operate 24 hours per day and since there are relatively few of them as compared with laundries, canning and packing plants and central stations, it is felt that the results are quite gratifying. This fact should not act to lessen watchfulness and efficient maintenance, however. Instead it should bring about a concerted effort to do better during 1931.

When the various accidents are charged against the various days of the week, four accidents occurred on Mondays, four on Tuesdays, two on Wednesdays, three on Thursdays, seven on Fridays, six on Saturdays and only one on a Sunday. Because the operating schedules are somewhat different in a pulp mill than what they are at a paper mill and because they vary from time to time, with the seasons of the year and with the individual plants, it may not be possible to draw any specific conclusions from knowing which days are responsible for the largest number of accidents. Nevertheless, this fact is of interest and when analyzed in connection with each individual plant, these figures may have some special significance that may tend to combat boiler troubles and its dangers to life and property.

Table 1—Boiler Accidents in Various Industries

Industries	No. of Accidents
Canning and Packing	31
Laundry	29
Logging and Lumber	47
Electric Light and Power (Utility)	39
Paper and Pulp	28
Knitting and Textile	34

Table 2—Accidents to Boilers in Paper and Pulp Mills

Nature of Accident	Number of Times Occurring
Feed-water heater exploded	2
Water heater explosion	1
Superheater boiler ruptured (8 tubes)	2
Tubes ruptured	8
Paper machine roll cracked	1
Tubes bagged (8 tubes)	1
Boiler overheated	1
Tube pulled out of sheet	1
Water-tube boiler ruptured	1
H. T. boiler head cracked	1
Steam piping failed	2
Tube failed V. W-T boiler	2
Blow-off pipe ruptured (thrice same plant)	3
Economizer tube failed	1
Headers cracked	1

Ash Is Costly

EVEN in out-of-the-way locations where the removal of ash may not be a direct expense, other than for the deterioration it causes and the inconvenience, ash is costly. To begin with, the ash is paid for at the price of coal. One Thousand pounds of ash and a fifty-ton carload of coal results in a transportation cost of $1 per car, where the freight rate is $2 per ton. Ash causes trouble in the furnace due to fluxing, erosion and rapid deterioration of the refractories.

The Bureau of Mines has estimated that transportation loss amounts to $12,426,000 per year for each one per cent of unnecessary ash in the coal of the nation. Ash is costly at any price.

Eliminating Fly Ash

The deteriorating effects of the effluent from smokestacks upon metal and stone exteriors and vegetation are quite generally known. Likewise the fact that clean paper is an objective of the highest importance, makes it desirable that air coming into the mill should be free from particles of fly ash that are emitted from the power plant chimney.

Combustion of coal, as every engineer knows, is no exact science. Coal may be of one analysis in one small lot and entirely different in the next lot. It is practically impossible to supply the exact amount of air required for complete combustion, due to this slight changing in coal analysis.

Smoke, soot, destructive gases and fly ash exist in stack effluent, regardless of the method of firing. Whether natural draft is employed, stoker fired with forced draft, or pulverized fuel is used, the obnoxious stack effluent still exists and pollutes the atmosphere.

The elimination of these annoyances is offered at a moderate investment in a simple patented system of washing the gases of combustion, by the designer, A. W. Ellison, engineer, Chicago.

"Treatise on Leather Belting"

The leather belting industry has just issued what is the first and only authoritative, up-to-date book on leather belting. This addition to available knowledge of mechanical power transmission and materials is called "Treatise on Leather Belting." This book has been compiled by George B. Haven, S. B., Professor of Advanced Machine Design at Massachusetts Institute of Technology and George Swett, S. B., Professor of Machine Design, of the same school. The work is published by the American Leather Belting Association, 41 Park Row, New York City.

The leather belting industry always had a great mass of valuable data in the hands of leather belting manufacturers and users. There was also a number of records of tests made in engineering schools such as Mellon Institute, Cornell University, Ohio University, etc. Altogether, the material the authors had to work on was present in great volume and to bring everything up to date, supply the supporting mathematics, and issue the result in a book of but 233 pages was a praiseworthy task. The two professors have done themselves proud and a great deal of credit is also due to the Engineering Committee of the American Leather Belting Association, who worked with the professors.

The book takes the reader from the first step in leather manufacture through all stages of the work required to transform the raw hide into finished belting leather; describes the different kinds of leather and their proper field or use. It then goes on to give all details of the processes involved in making belting from the finished leather; variations in quality; different cements used, etc.

Another chapter deals with a multitude of facts of immense value to all users of power. It first gives in detail the various grades and weights of belting available; the right pulley to use and why; practical rules governing the application of belts to machines; tables of horsepower developed at different belt speeds; proper use of idlers; short center drives; hinged motors for short center drives; in brief, every question likely to be asked by the practical mill man regarding belt drives, is answered.

Then, there is a chapter devoted to the care of leather belting; making belts endless; proper method for hand lacing; taking up belts; repairing and cleaning. Following this is a chapter on motor drives; relative value of group and individual drives; table of cost, etc.

For the scientific student and engineer there are four chapters, dealing comprehensively with belt drive engineering from the standpoint of the trained engineer; with a wealth of invaluable mathematical tables and original monographic charts. All tables are simplified to cover the range of accuracy found in the usual data of mill engineering practice. The charts provided are new and original to the industry.

The book appears to fill a long felt want; enabling the purchasing agent who is without technical training to judge belting intelligently, to know how to specify and how to inspect; it gives to the mechanic, belt man or superintendent a store of data regarding practical application, use and maintenance never before available and it gives to the technical student or engineer other data of equally great value and wide range of use.

The book is bound in cloth board cover with thumb index and is a beautiful, well printed, profusely illustrated work. It is distributed by the American Leather Belting Association or through the manufacturer members of that association.

New Enclosed Design Reeves Transmission

The new enclosed design variable speed transmission, recently announced by Reeves Pulley Company, Columbus, Indiana, embodies radical improvements over previous Reeves enclosed designs, and offers definite advantages to buyers of

variable speed-control equipment, and is an important addition to the company's complete line of variable speed transmissions. In this new unit, the standard internal operating parts of the Reeves transmission are totally enclosed in a compact, neat and symmetrical cast iron case which affords

complete protection in all machine applications where the operating parts of the transmission must be guarded from water, live steam, chemical fumes or abrasives.

Easy access to the internal operating parts is provided and the removal of the lid from the cover section permits minor adjustments, inspection of the internal operating parts, or installation of a new V-belt. (See lower illustration).

Outstanding among the features of the new transmission is the improvement in lubrication facilities. Complete lubrication of all bearings is accomplished through force feed fittings, located in two recessed panels at one end. From these eight fittings, rigid copper tubes lead to the four radial shaft bearings, and flexible copper tubes lead to the four thrust bearings fitting around the disc hubs. By means of openings from the thrust bearings, the lubricant is also forced into the spiral grooves of the disc hub bores, thus thoroughly lubricating the disc hubs, shafts and driving keys.

The unit is built in six sizes, covering requirements from fractional to 10 horsepower in all speed ranges, and can be mounted on floor, ceiling or in vertical position, as the requirements of the installation demands.

Practical Helps for the Mill Man

Specific Gravity Nomograph

By D. S. DAVIS
The Mead Corporation, Chillicothe, Ohio

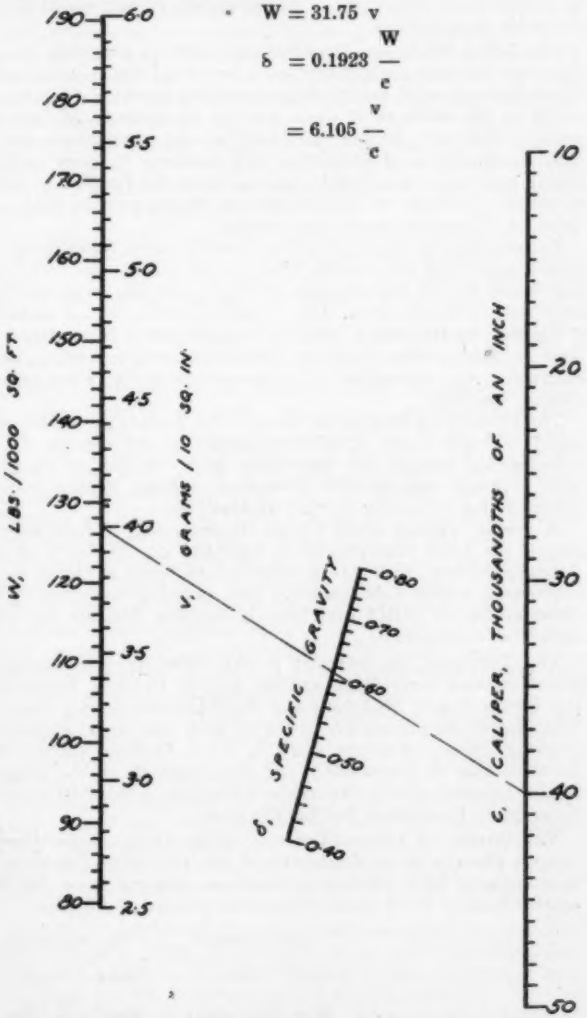
THE accompanying chart enables rapid calculation of the specific gravity (δ) of test liner or chipboard and the weight (W) in pounds per 1,000 square feet, when (v) the weight in grams of 10 square inches and (c) the caliper in thousandths of an inch, are known.

The relations involved are:

$$W = 31.75\ v$$

$$\delta = 0.1923 \frac{W}{c}$$

$$= 6.105 \frac{v}{c}$$



Smoothing Reground Suction Press Rolls

THE question of countersinking the holes in a suction roll on a press part comes up anew in each mill which installs such a roll for the first time. Of course, the countersinking of the roll in the factory where it is made is a relatively simple matter but when the roll has to be ground in the paper mill the countersink is eventually worn off. One mill finally bought some special equipment to put the countersink in again but finally abandoned this in favor of simply wrapping emery cloth around the roll as it lay in the grinder and rotating the roll. This took off any possible burr that would affect the felts and the mill operator says the felts run as long as they did when the roll was countersunk.

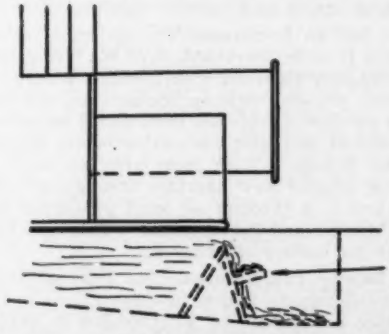
Air Nozzle for Skinning Press Rolls

WHERE air is used to "skin" the presses on a paper machine, some machine operators prefer the device

shown in the sketch to the arrangement with only two nozzles. This device can be made from nipples and pipe fittings or it can be made jointless if the mill has a welding outfit.

To Catch Slabs

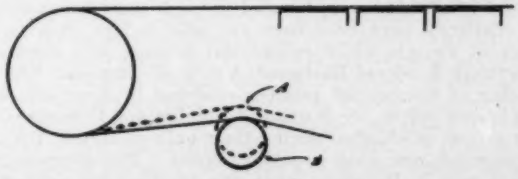
THE sketch shows a simple device of a few heavy spikes or rods on the front board of a grinder dam to catch the



slabs before they fall into the stock canal. This keeps the slabs out of the bull screen where they often clog the scrapers.

Preventing Wire Slippage on Couch Roll

ESPECIALLY on new installations of suction couches, sometimes even on an installation of a brand new fourdrinier, there is a question of how to stop a constant slipping of the wire on the couch roll. This may come even to a



point where the wire will stop under the drag of the flat suction boxes. The sketch indicates the possibility of improving this condition by raising the first return roll from position (B) to position (A) or higher if it is thought desirable. This will give more "wrap" around the couch roll and so tend to prevent slipping of any kind.

The Month at Washington

THE annual statistical story of Congress, prepared by the Tally Clerk of the House, shows that the volume of legislation passed by the 71st Congress fell below that of the peak Congress of recent years, namely, the 70th. The decline was principally due to a reduced volume of measures passed by the Senate. A total of 1,524 measures were passed as compared with 1,722 for the preceding Congress, 1423,996, 931,594 and 508 for preceding sessions, carrying us back to the 65th Congress, showing a constantly increasing passage of bills. Of course, the grand total of bills passed by the 71st Congress, including private bills grouped into omnibus pension bills, etc., was 7,502. Only significant legislation is included in the above figures. Congress was actually in session during this period 290 days. The House introduced 17,373 bills, 536 joint resolutions, 394 House resolutions and 53 concurrent resolutions, or a grand total of 18,356 bills. The President approved 867 public laws, and two passed over his veto; approved 140 public resolutions, 512 private laws and 3 private resolutions.

An interesting development at the next Congress will be a decisive effort to pass legislation establishing a Federal Trade Court to hear, try and decide all cases arising under the various federal statutes concerning unlawful restraints and monopolies; the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors; cases arising under the Federal Trade Commission act, etc. Ten branches of the court would be established, one in each judicial district.

Air Mail Service Increased—The air mail service across the continent is to be increased, says W. Irving Glover, Assistant Postmaster General, with through schedules planned with trimotor planes providing accommodations for passengers, and a number of trips are to be added on several routes. These extensions will give the nation better mail-passenger service than Europe. With four large air mail operators inaugurating several new services throughout the country effective April 1, a through air mail passenger service between the Atlantic and Pacific coasts will be provided for the first time in the history of aviation.

Federal Income Tax Returns—The Internal Revenue has just made public income figures of corporations in 1929, showing a greater net income by $700,000,000 in 1929 than the preceding year, according to returns filed up to Aug. 31, 1930. The net income of individuals was also larger by $150,000,000. The figures for 1930 according to March returns are by no means quite as rosy, but not complete data is yet available.

Analysis of Business Failures—Statistics showing the methods by which commercial failures are liquidated, have been compiled for the first time with respect to the 3,328 failures in January, 1931, says the Department of Justice. Bankruptcy proceedings were employed in 2,367 cases involving liabilities of $48,354,290 while 961 cases involving liabilities of $46,223,116 were handled through court receiverships. No statistics have ever been available before showing the different ways in which commercial failures were liquidated.

Services Rendered Business—A new all-time record for the number of commercial services rendered to American firms and individuals by the Bureau of Foreign and Domestic Commerce, was established during the month of March, the total number for one week reaching 89,464. The previous high record was in February when one week's total aggregated 85,236. The requests pouring into the bureau show the continued utilization of the bureau's services.

American exporters are advised to study foreign markets more carefully, says the Commercial Intelligence Division of the Bureau, which points out that many American businesses will be rewarded for revamping their selling plans to meet the present situation and will profit immensely thereby when business improves.

Ways and means to promote American export trade and to assist in the solution of domestic business problems were discussed in a three-day conference of district and co-operative managers of the bureau recently. These gatherings of heads of the Federal Government's trade-promotion bureau are held annually. These heads may be fittingly termed the "superservice stations of American business." There are now 34 district offices located in the chief trade centers of the country, which gives the Bureau's 46 co-operative offices in chambers of commerce, a broad aspect of our social and economic development.

The Labor Situation—The five-day week is receiving considerable impetus in industry as a result of the depression, which has removed many obstacles to its previous adoption, owing to the shortage of work, and the Department of Labor predicts that the practice will likely be made permanent, and that the majority of industries will continue to keep operations at a reduced schedule, inasmuch as the feasibility and economic soundness of the five-day week may now be said to have been demonstrated successfully.

Organization of the new Federal Employment Stabilization Board, providing for advance planning of public construction, has begun by the Department of Commerce, pursuant to the employment Stabilization Act of 1931 (S.5776), which makes it the duty of the Board to advise the President from time to time regarding unemployment conditions with a view to accelerating the execution of construction work when conditions warrant.

The President's Emergency Committee notices an improved trend in employment conditions generally and reports that encouraging factors are prevailing in a number of states, with highway construction programs offering among other things relief to jobless in various localities.

A special census made by the Department of Commerce places the total unemployed at 6,000,000 on the basis of a January survey made in 19 large cities, with a slight improvement found subsequently, and pointing out that the effectiveness of relief activities is keeping distress in the nation at a minimum.

The February improvement in the industrial employment situation was maintained during March. In New England, the Pacific Coast, Mountain and Southeastern regions somewhat better conditions are reported with the labor situation showing gains. Factory work in New England shows an increase that is noteworthy and the situation in the South is also improving very favorably, according to the President's Emergency Committee for Employment.

The Bureau of Labor Statistics of the Labor Department reports changes in employment and pay-roll totals for March as compared with February, based on returns from 42,383 establishments in 15 major industrial groups as follows:

	Employment			Pay-roll totals		
	1930	1931		1920	1931	
	Mar.	Feb.	Mar.	Mar.	Feb.	Mar.
Paper and printing	101.0	93.6	92.5	106.3	93.9	93.3
Paper and pulp	96.1	82.5	82.4	99.2	74.9	77.9
Paper boxes	90.9	82.8	81.7	95.3	79.8	80.6
Printing, book and job	102.8	96.8	94.8	107.2	97.3	94.0
Printing, newspapers	109.2	107.1	105.8	113.6	108.1	107.2

The labor turnover for March shows for all industries:

Quit	.74%
Discharged	.20%
Lay-off	1.75%

Machine Leading to Higher Living Standard Abroad—The trend to mechanization of industry abroad is said to be reflected in greater imports since the war, according to W. H. Rastall, chief of the industrial machinery division of the Department of Commerce, who points out that the full significance of the growth of industry during recent years, particularly the machinery industry, is not fully recognized. This trend toward industrialization through machinery is believed by many to be the secret of the high American standard of living and the means by which it will be possible to raise the standard of living in other countries. In the United States there is installed in our industries each year about $23 worth of machinery for each man, woman and child of our population, or a total of $2,500,000,000 annually. In Great Britain the per capita figure is $10, in Germany $9, in India 17c, and in China 5c.

Factors Favoring Upturn in Trade—Dr. Julius Klein in a recent statement concerning the business situation points out that better quotations on high grade securities and the dissipation of the panicky attitude and the application of normal methods are encouraging signs of upturn in trade. In the business situation today, quite apart from charts and indexes, there is one unmistakable and encouraging factor—he points out—and that is the very marked improvement in the mental attitude of the average business man. We are now in the convalescent stage, with possibilities of gradual improvement in the horizon.

Uncle Sam as an Employer—Uncle Sam is the largest single employer in the world, with a pay-roll of over 520,000 men and almost 89,000 women, according to a statement issued by the Women's Bureau.

Wholesale Prices—The index number of wholesale prices computed by the Bureau of Labor Statistics shows a further recession for March, including 550 commodities. With 1926 as the basis of 100, we find the following changes:

	March 1930	Feb. 1931	March 1931	Purchasing Power of the Dollar, March, 1931
Paper and Pulp	87.0	83.6	83.1	1.203

Preliminary Report on Retail Credit Survey—The Perliminary report on the current retail credit survey shows that considering the circumstances, the American people were paying their bills satisfactorily on the whole during the latter half of 1930, just as they were during the first half. Sales for the latter half of 1930 were 10.9 per cent below the corresponding period for 1929, but a large part of this may have been attributable to price declines, it is pointed out.

Interstate Commerce Rulings—In E-Z-Opener Bag Co. (No. 20346), the Interstate Commerce Commission ruled upon further hearing that the amount of reparation due under the findings in an original report, that the rates on pulpwood from certain origins in Mississippi to Braithwaite, La., were unreasonable, was determined at a slightly higher rate and an order awarding reparation was entered.

In Carpenter Paper Co. (No. 20842), the commission reversed its previous ruling that the claim for reparation on a carload of paper pulpboard from Indianapolis, Ind. to Omaha, Neb. was not barred.

In United Paperboard Company (No. 20665), the commission held upon further hearings that the rates on chipboard, pulpwood, boxboard, and other paperboards, in carloads, from Thomson, N. Y., to certain destinations in Mass., were not unreasonable in the past but would be unreasonable for the future.

Rates on printing paper, other than newsprint, in carloads, from Niagara Falls, to Atlanta, were found unreasonable in another decision (No. 22673), and a reasonable rate was prescribed for the future, with reparation awarded.

In No. 22193 (Case Mfg. Co), the commission found that rates charged on building paper, in carloads, from Unionville, Conn. to New Bedford and Boston, Mass., were unreasonable and reparation was awarded.

Use of Paper Bags Increases—Paper bags have come to be extensively used as shipping containers according to the Bureau of Standards, because they are proven economical in respect not only to cost but also to breakage and protection of the contents. The most common type is the multiple-wall bag, composed of kraft paper made water-resistant by rosin sizing and with a self-closing valve through which the material is introduced. Tests have been conducted by the Bureau of sheathing papers also, which indicate that types are available which are sufficiently impervious to air and have the other necessary qualifications of strength, flexibility, water-resistance and lack of odor. It is pointed out that papers reinforced by textile fabrics are available if greater strength is desired.

Recent Publications—Interest in the analysis of the problems and advantages of industrial traffic management recently issued by the Transportation Division of the Department of Commerce has been so great that the first edition was completely exhausted almost as soon as it had been issued and a new printing was made necessary. (Industrial Traffic Management, D. C. Series No. 30.)

The Standards Yearbook for 1931, the latest volume of a series which started in 1927, is now available from the Bureau of Standards, covering nine sections: standardization in transport; international standardizing agencies; national standardizing agencies; Federal standardizing agencies; general standardizing agencies; the National Bureau of Standards; municipal, county and state agencies; activities of commercial, scientific, and technical agencies, and a bibliography of standardization.

If you do not already subscribe to the publictions of the Bureau of Standards, it is well to consider the publications issued, including **The Commercial Standards Monthly**—a review of progress in commercial standardization and simplification; **The Technical News Bulletin Monthly**—giving advance progress reports of scientific and technical work of the Bureau; and the **Bureau of Standards Journal of Research**, describing the bureau's research results in science and technology.

Paper Companies Oppose Consular Invoice— Amendment of customs regulations to require consular invoices on all types of imports, to facilitate Federal checks on certain commodities, would hamper American industries and would result in losses of approximately $300,000 annually to American newspaper publishers who import newsprint from Canada, opponents of the proposal testified at a recent hearing in the Customs Bureau of the Treasury Department. Under existing regulations, it was explained, products imported duty free or under specific rates contained in the tariff law, are not required to be accompanied by consular invoices; imports which are assessed ad valorem rates must have consular invoices. These regulations were adopted last August. The American Newspapers Publishers Association contended that the requests for the consular requirement were not applicable to newsprint in the absence of illegal dumping or production by forced or convict labor.

Tariff on Glue—The Tariff Commission announces an investigation under the provisions of Section 336 of the Tariff Act of 1930 into gelatin glue, glue size, and fish glue, not specially provided for, and casein glue.

Alaskan Woods—With large areas in Alaska suitable mainly for timber production, a present utilization of but a fraction of the actual and potential annual forest growth, a variety of species with a large range in properties, and an abundance of water power and timber resources favorable to pulpwood development, increasing economic forest development is presaged for the territory, according to a recent statement of the U. S. Forest Bureau. Technical Bulletin 226-T just issued shows how industries interested in the use of wood materials may take advantage of Alaskan woods.

Duty on Paper Reduced—The U. S. Customs Court at New York has just handed down a decision granting a protest of the Japan Paper Company and lowering the assessment on imported papers commonly known as tissue paper, copying paper, bibulous paper or similar paper, weighing over six pounds and less than ten pounds to the ream. The government assessment of six cents per pound and 20 per cent ad valorem under par. 1404, Tariff Act of 1930, is set aside and the duty is fixed at five cents per pound and 15 per cent ad valorem under the same paragraph. (Protest 468944-G-46844-30)

Paper Exports—The 1930 paper exports were maintained near the 1928 level, says the Paper Division of the Department of Commerce, but failed to attain the level of 1929 exports.

◆ NEW YORK CITY ◆

W. H. Anders Heads Nashua River

William H. Anders has been elected president and treasurer of the Nashua River Paper Company, whose main offices and 200-ton kraft paper mill are located at East Pepperell, Mass.

Mr. Anders has resigned as secretary of the Perkins-Goodwin Company, of 551 Fifth avenue, New York, with which concern he has been an officer and also director of wood pulp sales for many years, to take up his new duties. He is one of the most widely known individuals in the paper industry, a former president of the New York Pulp Men's Golf Association and long treasurer of the Association of American Wood Pulp Importers.

William A. Castle

William Anderson Castle, president and treasurer of Castle & Overton, Inc., dealers in and importers of wood pulp and other papermakers' supplies of 200 Fifth avenue, New York, died suddenly in Del Monte, Cal., on March 21 of heart disease in his 73rd year. Mr. Castle was in California on a vacation, accompanied by his brother and sister-in-law, Mr. and Mrs. Clifford D. Castle, of Springfield, Mass. The body was brought East for interment in his old home in Springfield, Mass.

Mr. Castle spent 58 years in the paper mill supplies industry, having started in business under his own name in 1873 in Springfield. Later he came to New York and formed a partnership with the late Leon Gottheil, and afterward Frank C. Overton joined the partnership, and the concern ultimately was known as Castle, Gottheil & Overton. Upon the death of Mr. Gottheil, the firm name was changed to Castle & Overton, and was incorporated in 1924. The concern has long occupied a leading place among the firms in the United States supplying wood pulp, rags, old rope, bagging and other materials, foreign and domestic, to paper mills.

Mr. Castle was a man of retiring nature but a character greatly beloved by all with whom he came in contact. While a regular attendant to business, he had in recent years "let down" in his activities, permitting the younger members of his firm to conduct the business. He is survived by two brothers and a sister. His wife died several years ago.

Despondent over recent illness, Fritz Lindenmeyr, president and active head of Henry Lindenmeyr & Company, one of the oldest and largest paper jobbing concerns in New York which was founded by his father 71 years ago, shot himself on March 18 in a room in the Hotel Biltmore, and died several days afterward in Lenox Hill hospital. Mr. Lindenmeyr was 55 years old, and is survived by a widow.

An effort to wind up the affairs of the Bi-Water Paper Corporation, of Cornwall-on-Hudson, N. Y., under a plan of amicable adjustment between creditors without resort to bankruptcy, and with the purpose of better conserving the corporation's assets for the benefit of creditors, apparently has fallen through, according to William H. Kennedy, attorney of 42 Smith street, Newburgh, N. Y., who has advised creditors that he has abandoned his plan to settle the corporation's affairs, and who has notified creditors to proceed independently in pressing their claims against the corporation.

J. F. McCarthy, for the last 18 years connected with the publishing and printing industry, has entered the ranks of paper dealers in New York City, having organized his own company under the name of J. F. McCarthy, Inc., with a capital of $10,000, and with offices at 10 East Thirty-ninth street, New York. The new company will specialize in supplying paper to magazine publishers.

Walter F. Daley, formerly manager of distribution of the Radio Corporation of America, and special contract representative of the engineering products division of the R.C.A. Victor Company, Inc., has joined the engineering research department of the Robert Gair Company, of New York, where he will assist in an enlarged program of research in paper and board products.

Charles Beebe

Charles Beebe, manager of the Union Talc Company, New York, dealers in talc and agalite fillers, died suddenly of heart disease on Sunday, March 22, at the home of his son, Dr. William Beebe, author and naturalist, 33 West Sixty-seventh street, New York. He was 80 years old. Until a week ago he had gone to his office every day. An account of his brother's death (General Ira L. Beebe) at the age of 90 on February 19, was supplied by him and published in the March issue of THE PAPER INDUSTRY.

Mr. Beebe was an alumnus of Cornell University, and a veteran of many years in the New York National Guard. He once was a lieutenant in the Gatling Battery in Brooklyn, and during the Civil War took part in suppressing the draft riots in New York. His wife was Miss Henrietta Young Love. She died in 1925. William Beebe is his only son. A brother, Clarence Beebe, living in Brooklyn, survives.

The funeral was held at Glens Falls, N. Y., on Tuesday, March 23.

Frank E. Floyd, executive secretary of the National Paper Trade Association, with headquarters in New York City, died at his former home in Indianapolis, Ind., on March 26 after an illness of several weeks. Mr. Floyd was 58 years old, and resided in Scarsdale, N. Y. He formerly was in the paper merchandising business in Indianapolis, and succeeded the late William C. Ridgway as secretary of the paper merchants' association.

W. R. Burt, a representative of the Weyerhauser Mill of the Northwest Paper Company, of Cloquet, Minn., has been spending the past two weeks in New York City in behalf of convertors' specialties for the Northwest Paper Company.

Fraser Paper, Ltd., is now comfortably settled in its New York office in Room 1213 of the New York Central Building, 230 Park avenue.

The Saxer Paper Mills, Inc., of Skaneateles Falls, N. Y., have decreased their capital from $200,000 to $50,000, according to notice filed with the Secretary of State of New York.

The Gotham Tissue Corp., of New York City, has filed notice of an increase in capital from $81,000 to $156,000.

Paper Makers Chemical Corporation

The Paper Makers Chemical Corporation has acquired the business and chemical manufacturing properties of the Georgia-Louisiana Corporation at Atlanta, Georgia and Marrero, Louisiana. Operations in the future will be carried on under the name of Paper Makers Chemical Corporation.

The Paper Makers Chemical Corporation maintains offices and plants at Easton, Pa.; Kalamazoo, Mich.; Milwaukee, Wis.; Holyoke, Stoneham and Boston, Mass.; Albany, Lockport and Carthage, N. Y.; Portland, Ore.; Pensacola and Jacksonville, Fla.; Savannah, Fargo and Atlanta, Ga.; Marrero, La.; Burlington, Ont., and Erith, England.

J. B. MacNeill who has been associated with the Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., since 1913, has been appointed general manager of distribution engineering with headquarters at East Pittsburgh. This group comprises the engineering activities on switchboards, circuit breakers, meters, relays, high tension insulators and lightning arresters.

WISCONSIN

Badger Paper Mills in Good Condition

Net earnings of $89,189 for the year 1930 by the Badger Paper Mills, Peshtigo, Wis., attest to the successful reorganization of the former Peshtigo Paper Co. under the management of Edwin A. Meyers, president. This sum added to earnings of $40,189 in the first 11 months of operation in 1929 give the company $129,339 available for dividends, the first of which probably will be declared in May. The company is in a strong financial position with cash and securities of $203,238, current assets of $731,000 and current liabilities of $140,000, a ratio of better than five to one.

Complete modernizing of the mills, improvement of quality and operating economies account for part of the success. Bond, mimeograph and ledger papers are now marketed under a trade name. Wax paper production for kitchen use totals 10,000 rolls a day. Four large color presses have helped develop an extensive line of printed and waxed paper bread wrapper specialties.

Forestry News

Forestry activity in Wisconsin is now assuming the proportions of speed in order to save the remaining timber and pulpwood and assure a supply for the future. Final authorization has been given for a federal nursery at Rhinelander, Wis., where 20 acres will be cleared at once. The nursery will supply 15,000,000 seedings annually for transplanting on the government forest units.

Three steel lookout towers, each 85 feet high, are being put up in the Moquah forest unit for fire detection. A fringe of hardwood also will be planted on each 160-acre tract to serve as a firebreak. Wide all year roads also are being built. As a further fire protection measure, the Wisconsin legislature is pushing for passage this year a bill requiring that logging companies dispose of all slash with 50 feet of roadways and timber tracts, thus removing the most frequent source of fires caused by sparks and carelessness of campers and tourists.

Although the Government eventually plans to have forest reserves of 1,000,000 acres in Wisconsin, the forest reserve commission at Washington has held up until fall authorization of further purchases totalling 602,600 acres. The new units were: the Namekagon, 262,000 acres; the Oconto, 176,000 acres; the Mondeaux, 115,000 acres, and a possible 49,000 acres in the Oneida preserve. The entire program will be gone over before further authorizations are made but in the meantime work is moving rapidly in development of the Moquah and Flambeau units of 270,000 acres.

During 1930, the Lake States area planted 15,846 acres to trees, exceeding all past records. This gave a start to 10,000,000 new trees at a planting cost of less than $4 per acre. The government expects to plant 40,000 acres a year in the future.

Kimberly-Clark Corp., Neenah, has placed on the market a bond issue at five per cent totalling $3,500,000, to reimburse the company in part for modernization and expansion during the last two years amounting to $5,000,000. This will make the capitalization $9,250,000 in series A five per cent bonds, $10,000,000 in six per cent cumulative preferred stock and 499,800 shares of no par common stock. The company has increased production to 147,000 tons annually and is supplying more than 50 national magazines with book paper. About 90 per cent of the rotogravure paper used in the country is produced by its mills.

Further expansion of the Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., is indicated in newspaper reports that the company will erect another power dam at Stevens Point, Wis. Large purchases of land have been made by the First Bond & Mortgage Co., of Wisconsin Rapids, presumably for the Consolidated company, and the deeds give farmers the right to continue use of the land until wanted for "a mill pond or flooding." Other flowage and river border land has been acquired by the company in past purchases. One of the Consolidated mills is now located at Stevens Point.

With an output of 1,100,000,000 feet since its establishment, the Masonite Corporation, of Laurel, Miss., is making phenomenal growth in the production of insulation lumber from pulpwood. The company is controlled by a group of capitalists of Wausau, Wis., who also are interested in Wisconsin paper mills, including D. C. Everest, vice-president and manager of the Marathon Paper Mills Co., Cyrus C. Yawkey, Ben and Judd Alexander, A. P. Woodson, W. H. Bissell, S. B. Bissell, M. P. McCullough and John Ross. Pulpwood is being bought from farmers at an expenditure of approximately $1,000 a day and the daily pay-roll has reached $2,200. Masonite is made under exclusive patent rights purchased from W. H. Mason by chipping and shredding the pulpwood, blowing it from high pressure steam guns and then pressing it into "lumber" 7/16 of an inch thick. It is equal to hardwood and quite popular for insulation. The long-fibered yellow pine of the south is used. The plant was established in 1912 and is managed by Arthur Glasgow, formerly of Schofield, Wis.

Operations have been started by the School Stationers Corporation in the factory building just completed at Menasha. New machinery added for expansion purposes will make this one of the leading ruling plants in the country. The line has included Royale writing, hectograph, mimeograph, typewriting and drawing papers, but a new line of tablets and loose leaf fillers is to be added. The new factory building is one story, covering a large area. Robert C. Brown and Harry F. Williams are owners of the company.

Low water has become an increasing problem. The Northern States Power Co., with storage capacity of 20,000,000,000 cubic feet of water, finds 22 of its reservoirs entirely dry and the three largest ones supplying only normal stream water. Drought of the last two years has caused the condition. Like all others in Wisconsin, most of the power must come from steam plants and the northern states is utilizing its connections at St. Paul and Minneapolis, Minn.

Supreme Court Dismisses Recapture Case

In the dismissal of a case by the United States Supreme Court, the Nekoosa-Edwards Paper Co., Nekoosa, finds itself obliged to comply with rulings of the Wisconsin Railroad Commission relative to a new dam built on Four Mile Creek at a cost of $450,000.

The dam supplies no power to the mill but merely impounds Nepco lake and gives the company its daily supply of water for the mills at Nekoosa and Port Edwards. Because the creek at one time was used for logging, the commission ruled it was navigable and therefore subject to the "recapture" law, giving the state the right to condemn the dam for its own use in 30 years. The company built the dam so logs still could be floated and rowboats operated around it. The supreme court declared the case outside of its jurisdiction.

Under the existing situation, it is understood the company could be forced to remove the dam, which would cost about $700,000, but an understanding no doubt will be reached with the state authorities.

Stream Pollution Hearing

Every paper mill along the Wisconsin river took part in a three-day hearing conducted by the state of Wisconsin at Merrill, Wis., recently to deal with complaints of sportsmen that the river was being polluted by the discharge of sulphite liquors.

The Tomahawk Kraft Paper Co. was the principal target, because it was claimed considerable destruction of fish re-

sulted from its return to sulphate pulp making. It was shown, as in other hearings held in the Fox river valley in the past, that the problem is one for which no final solution has been found; also that the paper mills are making a greater effort and spending more money than the state itself to find a means of eliminating the trouble. A committee of paper mill officials is working hand in hand with the state department of health and the state conservation commission. A later hearing was held at Madison, Wis., to complete the testimony. No punitive action is expected.

All of the safety schools in Wisconsin paper mill cities have held their closing meetings, with large turnouts and interesting speakers. At Green Bay there was an attendance of 500 to hear J. H. Hudson, of Chicago. J. M. Conway, president of the Hoberg Paper & Fibre Co. was toastmaster. Mr. Hudson also spoke at the closing banquet at Marinette, where 300 were present. The chairman was A. B. Hansen, acting manager of the Marinette & Menominee Paper Co. At the Nekoosa-Edwards Paper Company's last meeting at Nekoosa, Wis., Dr. Ernest Corn, of Chicago, gave the address. The Neenah-Menasha school, with a dinner attendance of 200, also heard J. H. Hudson.

Damages of $1,000 awarded to Theodore Manus, a riparian landowner, in a court decision probably will mean like awards to about 30 other riparians in a situation faced by the Marinette & Menominee Paper Co., Marinette, Wis. The case was appealed to the Wisconsin supreme court but was dismissed. Riparians contended that the addition of two feet to the company's dam caused interference with natural drainage of farm lands.

Riverside Paper Corporation, Appleton, Wis., has completed construction of a new warehouse 47 by 60 feet, one story, and of brick. It gives about 3,000 feet of additional floor space and represented an outlay of about $6,000.

A new stock exchange has been opened by the Milwaukee Association of Commerce at Milwaukee, and seven Wisconsin paper mills have their stocks on the market there. Later bonds also will be listed. Mills represented are: Marathon Paper Mills Co., Mosinee Paper Mills Co., Consolidated Water Power & Paper Co., Nekoosa-Edwards Paper Co., Northern Paper Mills, Rhinelander Paper Co., and Tomahawk Kraft Paper Co.

Bates Valve & Bag Co. has transferred E. P. Engness, manager of the branch plant at Menominee, Mich., to Seattle, Wash., where a new plant is to be opened. Thomas R. Polglase, of Chicago, is in charge at Menominee until the return from Europe of Herman Haberle.

Gov. Philip LaFollette, of Wisconsin, has chosen J. M. Conway, president of the Hoberg Paper & Fibre Co., Green Bay, Wis., as one of five members of an emergency unemployment committee. These men will authorize contracts for separation of 90 railroad grade crossings in Wisconsin this season, giving employment to about 6,000 men.

Increase of orders has made it necessary for the Marathon Paper Mills Co. to add 37 girls to its force at the Ashland converting plant. The company recently added a line of paper luncheon sets now proving to be quite popular.

Henry Thoms, former mill superintendent for Kimberly-Clark Corporation at Neenah and Niagara, Wis., passed away recently at Chicago.

C. E. Curran, chief of the Pulp and Paper section of the Forest Products Laboratory, Madison, Wis., left March 23 for a month's field study of pulping species in the western forest districts. Dr. Curran will visit U. S. Forest Service headquarters in Denver, Albuquerque, Flagstaff, Los Angeles, San Francisco, and Portland. He will address the Western Section of Tappi at Everett, Wash., on April 18, on the subject "A Review of Current Research at the U. S. Forest Products Laboratory."

Andrew E. Sjoman, chemist at the Tomahawk Kraft Paper Co., Tomahawk, passed away suddenly on March 1.

Henry Ritten, for 24 years night superintendent at the John Strange Paper Co., Menasha, Wis., passed away recently at his home.

PACIFIC COAST

WASHINGTON

Rainier to Remain at Shelton

The Rainier Pulp and Paper Company will remain at Shelton, and will spend $458,000 in plant expansion, although for sometime citizens of this town began to doubt whether they were going to retain this industry with its good-sized pay-roll, numbering 150 persons most of the time.

For the better part of two years the paper company has had trouble with the oystermen of the district who complained that their oyster beds were harmed by waste from the mill. But according to report the last week in March both from the head offices of the company in San Francisco and from Shelton, it is learned that the plant will not be moved.

The controversy was a three-pointed one between the residents of Shelton, the paper company and the oystermen.

Upon decision of the company to keep the plant at Shelton, residents of the town agreed to raise $166,000 as an aid in settling damage suits brought against the paper company by the Oakland Bay oystermen. The other suits will be settled by the paper company itself.

Advices coming from San Francisco following a meeting held March 23 were to the effect that the Rainier Pulp & Paper Company had voted a bond issue of $500,000, most of which will be spent for the aforementioned improvements at Shelton.

Construction on the new plant for the Riverside Paper Co. at Tacoma has now been in progress for about 60 days. The first unit, 30 by 280 feet, is completed and awaits the installation of machinery. Two more buildings are to be added. When manufacturing starts, two paper machines will turn out novelty lines and tissues. W. T. Hanson, formerly engineer in the East, is in charge of the building program.

C-W Transporting Paper by Barge

The Crown-Willamette Paper Co. is experimenting with barge service on the Columbia river between Camas and The Dalles, in co-operation with the Western Transportation company. The first cargo of paper was loaded at the plant and dispatched on barges March 30, and the length of time and cost involved will determine for both concerns whether Columbia river barge service is going to prove a paying proposition. If so it will become a regular medium of distribution for the Crown-Willamette in this territory.

The first shipment contained 300 tons of fruit wrap for distribution by truck to fruit growers in the Yakima fruit belt. Two steamers were used below Cascade Locks but one was eliminated.

The plant of the St. Regis Kraft Co., Tacoma, has announced plans for reopening following a shutdown of operations since before Christmas. More than 250 men will be given employment about April 14, according to officials, working in four-day-a-week periods, producing 600 tons of pulp weekly. W. W. Griffith is general manager of the plant which is one of Tacoma's major industries. Former employees are given preference.

Date Set for Pacific Coast TAPPI Meeting

The spring meeting of the Pacific Coast Section of TAPPI is all set at this writing for April 18-19 at Everett, according to C. W. Morden of Portland, chairman of the Pacific Coast group who has been spending sometime in Everett getting a program lined up. Dr. Curran of the U. S. Forest Products laboratory is to be one of the principal speakers, taking for his subject "A Review of Current Research at Forest Products Laboratory." He will make special reference in this to the work now under way on western wood specimens.

Fourteen papers in all are expected to be presented on the program by various delegates, the subjects of some of these not having yet been determined.

The Everett committee which will act as hosts on this occasion, have planned a trip to the paper mills on the afternoon of the first day. On Sunday morning, the Pudget Sound Pulp & Timber Company were to entertain the guests at Big Four Inn. A stag banquet as a regular event on Saturday evening was another entertainment feature in anticipation at the time of Mr. Morden's announcement.

Income of the Columbia River Paper Mills, Vancouver, for 1930, amounted to $374,748 before deducting bond interest, depreciation and federal taxes, it was shown in the annual report. The 1929 figure was $576,751. The mills reported total current assets as of December 31, 1930, amounted to $794,239 and current liabilities to $304,220 making a ratio of 2.61 to 1 compared with the preceding year's ratio of 1.97 to 1.

OREGON

Receiver for Willapa Co. Denied

A suit brought by P. K. Mayers and V. K. Sturges, stockholders, seeking the appointment of a receiver for the Willapa Pulp & Paper Co., organized as an Oregon corporation September 27, 1927, was filed in circuit court in Portland March 14 and on March 20 was denied by Circuit Judge Tucker.

In asking for the receivership the plaintiffs stated that funds raised through the sale of stock had been dissipated and that the pulp mill which was promised for the Willapa Harbor district in Washington had not been constructed. It was charged that the company at one time had $700,000 in the treasury but that only $14,500 of this remained. Assets amounting to more than $500,000 involved in the request for receivership included a mill and timber properties and docks in Pacific county, Wash.

The stockholders further stated in their suit that the property was losing value as piling had been driven on the site and was rotting and that other property was in danger of fire.

Other allegations made in the suit included failure of the officers and directors to pay taxes in 1929 and 1930 totaling $6,000 in Pacific county. The complaint stated that the Willapa Pulp & Paper Co. owns 2,000,000 feet of timber valued at $120,000 in Pacific county, and booming grounds, waterfront property, lime deposits and other assets worth $1,000,000.

The Spaulding Pulp & Paper Co., whose plant is at Newberg, showed a deficit of $28,881 for the fiscal year, according to a report made to stockholders from figures on file with the company's directors. The board of directors issued a recommendation for issuance of a $250,000 trust mortgage to permit refinancing.

Oregon State Promotion Campaign

O. W. Mielke, Portland, president of Blake, Moffitt & Towne, accompanied by Mrs. Mielke, has returned from a trip which took him east and over a return ocean route that included Cuba and stops at southern coast points.

Mr. Mielke immediately upon his arrival home launched into the huge promotion campaign for the State sponsored by On-To-Oregon, Inc., of which he is president. A plan to raise $200,000 for advertising by the last of April has already been introduced to civic organizations and will be statewide in its scope. Mr. Mielke was the principal speaker at the luncheon of the Portland Advertising club March 24 and is appearing before a number of other important state bodies in the interest of the enterprise.

The Sitka Spruce Pulp & Paper Co., Empire, reports that it is operating its sawmill steadily, cutting 150,000 feet in eight hours, with spruce about 90 per cent of production. In order to provide more steam for the pulp mill, which is turning out 60 tons daily, a 700 hp. B. & W. water tube boiler has recently been installed. This company has been shipping to Europe and Japan. C. McC. Johnson is president of the Sitka Spruce Pulp & Paper Co. J. A. Lyons is general superintendent of the sawmill and pulp mill and Dennis Genona is sulphite superintendent. E. E. Johnson is sales manager.

The Western Board Products Co., Portland, is invading the shipping industry with a box of extra tough fiber board which is manufactured in collapsible form but which is said to stand up well under heavy test shipping conditions. It is made from the byproduct of waste flax.

Charles K. Spaulding, president of the Spaulding Pulp & Paper Co., Newberg, who served as a member of the State senate during the recent legislative session, has added another responsibility since his appointment by Governor Meier as a member of the State highway board. Mr. Spaulding will retain his position in the senate.

CALIFORNIA

F. C. Farnsworth of the Farnsworth Co., Conshohocken, Pa., has advised western industry leaders that a representative will visit the coast on an extended visit this spring in the interest of new lines of his company. Pulp and paper mill engineers are expected to be particularly interested in the heat reclamation and drying systems.

Organize Fibreboard Case Ass'n.

The Export Fibreboard Case association has recently been organized with H. L. Stillwell as managing director with official headquarters to be established in San Francisco. The new organization is a coast idea but will immediately be developed throughout the country through other offices.

As the name indicates, this new organization is designed to promote the use and manufacture of fibreboard shipping containers of high quality. A general feeling has existed that if fibreboard containers could be improved and their practical qualities demonstrated the consumption of fibreboard would be greatly increased in view of the fact that it is lighter in weight and therefore reduces the cost of freight or express shipments.

Members of the Export Fibreboard Case association will maintain a certified standard of quality for all their products and it is expected that an emblem or trade-mark indicative of such a standard will be stamped on all items. Tests of strength, size and durability have been made over a period of several months in order to furnish data for a standardized product that would meet the requirements of the market.

C-W Dismantles Floriston Plant

The Crown-Willamette Paper Co., has entirely dismantled its plant at Floriston, on the Nevada line, after continual complaints and litigation on the part of residents in the adjacent territory who declared that the acids were polluting the water of the Truckee river.

This instance of stream pollution has become almost a tradition, since for more than 20 years the Crown-Willamette Paper company has employed expert chemists to wrestle with the problem, only to find that complaints that seemed buried would arise in another form, creating a condition that finally made further effort unprofitable.

As a result, citizens of the district and the town of Floris-

ton lost the industry which was its life. The machinery has been distributed where it can be used in other plants of the company.

C. Stewart Lee, vice-president of Pusey & Jones, Wilmington, Del., paper mill equipment manufacturers, visited California cities last month on a western tour which took him through the entire northwest and down the coast to the southern part of this State from which he returned to the East.

Mills and Dealers to Hold Joint Meeting

H. Arthur Dunn, secretary of the Pacific States Paper Trade Association, announces the removal of the official offices March 2 to suite 507 Robert Dollar building. This office is now busy with plans for the fourteenth annual convention of the association to be held at Hotel Del Monte, Del Monte, Cal., May 13-16.

The tentative program includes a golf tournament which will be the thirteenth annual event of its kind, and the annual dinner dance on the 15th. The secretary states that there will be interesting entertainment for the ladies both during the time the delegates are in business sessions during the day, and in the evenings. The business program is being drafted at this time, and will include one session given over to a joint meeting of the dealers and manufacturers.

During the dates of this convention the Pacific Coast Association of Pulp & Paper Manufacturers will hold their first annual convention, meeting in separate sessions except for the joint meeting.

J. J. Herb, president of the Pacific Coast Paper Mills at Bellingham, Wash., and of the Westminster Paper Co., Ltd., New Westminster, B. C., visited in San Francisco and Los Angeles last month on his first lap of an Oriental tour which will take him to Australia, New Zealand and Honolulu besides the countries of the Orient. Mrs. Herb is making the trip with her husband.

Neil B. Sinclair, Los Angeles, Pacific Coast manager for the Nashua Gummed and Coated Paper Co., Nashua, N. H., and James F. Nields, San Francisco representative, are back at their headquarters after a trip to the eastern factory.

E. C. Bogren and Cecil Billing of the Portland office of the Western Waxed Paper Co., were visitors in San Francisco recently.

E. E. Barrett, of the New York office of the Mead Sales Corporation, and Geo. H. Fay, Chicago sales manager for the company, were recently on the coast in the interest of the company. This company was recently appointed representative for pulp distribution for the Spaulding Pulp & Paper Co. at Newberg, Ore.

Crown-Zellerbach Corp, reports gross profit of $8,078,341 for the first three quarters of the fiscal year, according to an official letter to stockholders. Net income, after all prior charges and preferred dividends, amounted to $564,522 for the nine months' period which ended January 31, 1931. Crown Willamette Paper Co. figures released at the same time show total gross profit of $5,559,928 for the first three quarters of the fiscal year.

Wax-Rosin Sizing

In a note sent out to the trade by Bennett Incorporated, Cambridge, Mass., on the subject of sizing, with particular reference to the action of wax in combination with rosin, the point is made that while rosin acts somewhat as an adhesive and consequently renders the paper in which it is used stiff and brittle, wax acts as a lubricant and serves to increase the pliability of the sheet in which it is present.

In order to retain the desirable qualities imparted to the paper by rosin and yet to obtain also those advantages by wax, certain definite proportions of each should be used.

New Catalogues, Books and Publications

Alexander Brothers, Philadelphia—This manufacturer of leather belting has issued a booklet entitled "The Effect of Belt Tensions on the Cost of Belting." This booklet contains a non-technical explanation of the subject with an understandable summary of all factors entering into belt costs, and sets forth advantages claimed for leather belt over substitute belt for the transmission of power. Copies upon request.

Alloy Steel Products Co., Boston—This company, engineers and fabricators of stainless steel chemical, process and food equipment, announce a new line of valves which is described and illustrated in a new bulletin which is now ready for distribution.

Bailey Meter Co., Cleveland—A new bulletin, No. 70, describes and illustrates Bailey power type pressure devices, explaining how the dead weight tester principle is combined with a hydraulic torque amplifier and a Selsyn motor system of long distance transmission. The principal use of this unit as explained in the bulletin, is for the operation of a master steam pressure indicating and recording system where it is desired to have a number of indicators or recorders located at various stations.

Black-Clawson Co., Hamilton, O.—The latest issue of "The Messenger," this company's plant magazine, has merited special attention. Paper mill problems have been the object of much study on the part of manufacturers of paper mill equipment, and the Black-Clawson Co., and its affiliated organization, Shartle Bros. Machine Co., are well-known for their co-operation among the mills of the industry. In this issue of their house organ, a graphic story is presented of the extensive improvements and expansion program which has just been completed at the plant of the Champion Coated Paper Co., Hamilton, Ohio. This company has improved the temporary lull in business to make its plant the last word in a modern paper mill. The article is presented in a most interesting manner being constructed around the theme of preparedness. The reader is taken for a trip through the Champion plant and every step of the improvements and new equipment explained. The text is interspersed with interior views of the mill and separate illustrations of some of the equipment. The description points out much new Black-Clawson and Shartle equipment. There is a brief history of the Champion Co. showing an illustration of the original mill built 37 years ago, and an air view of the new plant. The modernization of this plant is evidence of the company's faith in the revival of business.

Brown Instrument Co., Philadelphia—A new catalogue No. 8008 has just been released containing the latest data on Brown automatic controls for temperatures, pressures, flows, liquid levels and other vital process operating factors. It tells how automatic controls help quality, workers, management, cost and sales; how temperature controls can be applied to all types of furnaces, kilns, etc. Copies on request.

Freas Thermo-Electric Co., Irvington, N. J.—This company has just published in booklet form a presentation of the principles of good oven design as an aid to the selection of proper equipment. It is a helpful informative treatise on the fundamentals of laboratory ovens, and aims to correct many misconceptions concerning the apparently simple, but in fact really involved process of drying and baking operations in chemical laboratories and other technical control or research work in numerous industries. Copies on request.

Hoberg Paper and Fibre Co., Green Bay, Wis.—An innovation in style and compilation of catalogues has been achieved by this company in its most recent book just distributed to the papermaking trade. The catalogue is loose-leaf permitting the elimination of old pages and the insertion of new ones. The pages are printed on one side only and each page is confined to one product or grade. The products as well as various styles and grades are identified by item number as well as trade name. The manner of listing makes for simplification and reduces error to the minimum. The book is bound in a combination cover, green finish, with a design stamped in genuine gold leaf.

Sullivan Machinery Company, Chicago—Bulletin 71-J has just been issued as a temporary edition describing the air made well for pneumatic pumping of sand and slit strata. This method which combines the special well construction engineering of the Air Made Well Co. of Kansas City, and Sullivan air lift equipment and methods, has proven effective and successful in many cases in which it is desired to develop water supply from shallow sand and gravel strata.

BOOK REVIEWS

German Paper News—Our Berlin contemporary the **Papier-Zeitung,** published by Verlag Carl Hofmann G.m.b.H., Berlin SW 11, of February 25, 1931, is a special issue containing advance news of the Leipzig Fair, containing illustrated descriptions of new machinery and apparatus of special interest to paper manufacturers, paper converters, printers and paper merchants. Copies will be post free on request by the publishers for 1 Mark (24 cents).

Materials of Industry—This is the title of one of a series of vocational education books published by McGraw-Hill Book Company, New York, at $2. The author is Samuel F. Mersereau, director of Brooklyn Technical High School, Brooklyn, N. Y. The book is uniform in size and style with standard industrial textbooks and is printed on heavy paper. Each chapter deals with a specific industry giving the sources of materials, their distribution and production. In a chapter on forest products is a treatise on papermaking. Appended to each chapter is a bibliography of the subjects discussed and a series of definitions of trade terms and questions to be answered by students. These add considerably to the interest and value of the work which will no doubt be welcomed by boards of education and others who are interested in the promotion of vocational training.

ADVERTISING PAGES REMOVED

MICHIGAN

Engineers Club Elects Officers

Following a very profitable year under the leadership of A. E. Woollam as chairman and Charles Roberts, secretary-treasurer, the Chief Engineers Club held a gala evening for its annual meeting. Following an enjoyable dinner, the election was held. It is the policy of the club to elect new officers every year, therefore, it was impossible to honor the very efficient retiring officers by re-election, but a vote of thanks was tendered them.

The new officers are: president, C. B. Niel; sec'y-treas. C. E. Barry; board members, John Winterburn, T. R. Walters.

Following the election, the Club enjoyed several reels of moving pictures on Alaska. These were shown by Howard J. Cooper who has made several trips to this interesting land and he gave a very lucid account of his experiences along with the pictures.

Cost and Tech Men Hear Reports from Association

At the last meeting of the Cost and Technical Association some very interesting reports were made on the meetings held in New York the third week in February.

Arthur Dreshfield of the Paper Makers Chemical Corporation, reported on the meeting of his Non Fibrous Materials committee and also gave a summary of the papers which had been presented on Chlorine, Lime and Limestone. These papers have been published in the magazines therefore no summary is needed here.

Kent Kidder, of the Allied Paper Mills, reported on "Heat Transfer Through Drying Cylinders" which had been presented before the convention by Fred Stamm of the Upson Company. This paper has also been published as has Mr. Minton's paper on Drying Temperatures which was also reported on by Mr. Kidder.

For a report on the Cost meeting, Mr. Bradford of the Rex Paper Co. had picked Mr. Thomas Burke's paper on Comparing Profits.

All of the above reports proved very interesting to those who had not been able to get to "Old New York."

Paper Technologists Guests of Michigan Paper Co.

For the regular March meeting of the Technologists Club the members were invited to hold a meeting in the offices of the Michigan Paper Co., Plainwell, Mich.

Frank Whittington, of the Sutherland Paper Co., presented a paper dealing with the testing of paper to determine its printability. Experimenting had been confined to the testing of paper board and an endeavor to correlate the results with the actual printing results. It had been found that no methods have ever been proposed which were applicable to board and it was also found that no specific test could be relied upon to give any prediction of the probable printing qualities.

The experimental work has been in progress for several months and certain conclusions have been drawn, but it has not been possible as yet to definitely lay out a test or series of tests which will be infallible. The one test which seems to agree the most closely with actual printing results is by measuring the spread of a drop on litho varnish in a definite length of time and also taking into consideration the total drying time of this drop. This test goes wild sometimes due to the many variables encountered in a sheet of board which can affect the action of the drop.

The report seemed interesting to those present although no positive results have as yet been obtained.

Ray Barton, of the Michigan Paper Co., presented a paper on "Factors Affecting the Opacity of Paper." Mr. Barton has had considerable experience in book papers and spoke from this experience. He attacked the problem by taking up the various materials used in a sheet of paper and pointed out the qualities of each which would have an effect on the opacity. In the case of pulp and mineral fillers he said that it was quite essential that they be on the cream side for color. Light beating is necessary because hydration reduces opacity. This would mean using pulps with high initial strength.

This paper brought out a great deal of discussion which wandered off into papermaking problems in general.

On April 22, George H. Spencer, vice-president of the Minton Vacuum Dryer Corporation will be the speaker at a joint meeting in Kalamazoo, Mich. Mr. Spencer will, of course, speak on the Minton Dryer. It is planned to have a meeting of the superintendents, engineers, cost, and technical men, and any others interested. Visitors from outside Kalamazoo will be very welcome. Dinner will be served at 6:30 or 6:45 at the Columbia hotel. A record attendance should be seen as the Minton Dryer is a very interesting piece of equipment and the discussion will probably be very interesting.

Plans Completed for Interstate Meeting

The fourth annual Interstate Meeting will be called to order at noon on Friday, May 22, 1931. The series of meetings will be opened with a luncheon and joint session at which a nationally known representative paper man will speak on a subject of interest to both cost and technical men.

Friday afternoon, sectional meetings will be held and three speakers will appear on each program. At the banquet Friday evening there will be no formal speakers but Dr. Kress will speak on the progress of the Institute of Paper Chemistry at Appleton, Wis. The banquet will conclude in plenty of time for movie fans to take in the last show if they so desire.

Saturday morning will be devoted to mill visits and possibly a golf tournament or bowling match. The noon luncheon will again be a joint meeting and a speaker is provided who will be interesting to both the cost and technical men or any others who may be present.

Saturday afternoon the sectional meetings will be held the same as on Friday with two speakers and a question box on each program. Last year the question box proved quite valuable and many pertinent questions were discussed.

Superintendents Learn About Maintenance

The Michigan Division of the Superintendents Association listened with pleasure to a discussion of "Maintenance" by Edward Rutz, of the Bryant Paper Co. Mr. Rutz has been superintendent of power and maintenance for some years and has things worked out to a very fine system.

The plan at the Bryant Co. is to eliminate duplication of effort and at the same time maintain a high degree of efficient repair work. Requests for repairs must have the O.K. of the proper party to be recognized by the repair department. The work is systematized in such a way that men are always available for a quick repair job but no men are sitting around idle, waiting for something to happen.

The Bryant Paper Company through their Trustees have issued a call for $37,500.00 of their series A bonds. Not over $1.03 will be paid and those of the lowest bidder will be redeemed.

Paper Companies should be interested in a recent Michigan Supreme Court decision as it may affect decisions in other states unless reversed later by Federal Courts. The case has to do with compensation. One Oscar Gallup was injured in the plant of the Western Board & Paper Co., Kalamazoo, received compensation for a year and seemed cured, so signed a final settlement receipt. Years later the trouble recurred and necessitated an operation. Gallup applied for further compensation but was denied by the State commission. The case was appealed to the State Supreme Court and Gallup upheld in his claim. The court ruling was that "the statute of limitations does not apply after a compensation case has been started except that uncollected compensation payments become void after six years." Signing a final settlement receipt therefor, does not bar the man from receiving further compensation.

Are You Getting Ready?

Good times are coming in the paper industry

Regardless of present conditions, this country will sooner or later enjoy the greatest business expansion ever known.

When the great production race starts, it will be paper mill against paper mill as never before. Then the companies whose mills are equipped with the most thoroughly modernized machinery will be the ones to profit most fully.

With this thought in mind, foresighted paper manufacturers are checking over every piece of equipment now—asking themselves many questions about it.

Is this paper machine obsolescent to the point where it should be replaced with a modern machine of greater capacity?

Has that dryer depreciated to a degree that threatens quality, or that is likely to cause delays resulting in the disruption of the entire production schedule?

Is this Jordan costing too much for power, lubrication and maintenance?

When the answer is "yes", it will pay you well to do some writing off and to make immediate replacements.

In making such replacements, remember that Timken Tapered Roller Bearings are revolutionizing operating and production costs in all types of paper mill machinery.

And remember that these savings are so great that it is not uncommon for Timken-equipped machinery to pay for itself in a few months.

Now is the time to put these substantial economies into effect.

When business shifts into high, will you be ready to hold the pace?

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

SOUTHERN

S. E. States Develop Interest in Simplification

Interest in simplified practice and in standardization is increasing in the southeastern states, according to Geo. A. Cooper of the Division of Simplified Practice of the National Bureau of Standards, who has just completed a trip which included several of the industrial centers located in this section of the country.

Mr. Cooper further said that many southern industries are already co-operating with the division, and that state-wide simplification programs are now being arranged in Alabama and Florida. It is expected that the industries in many of the other states will take definite action.

Elimination of waste programs are of particular concern to the members of trade associations, purchasing agents' associations and public utilities, he stated, and these organizations are considering the simplification movement with renewed interest.

Although announced only a few weeks ago, the envelope manufacturing plan of E. C. Palmer and Company, Ltd., wholesale dealers in paper and printers' supplies, is already turning out hundreds of thousands of envelopes daily of all kinds, in most of which Louisiana-made paper is utilized. As far as is known, it is the only plant of its kind in the state, according to Albert C. Abbott, treasurer.

Approximately 35 truck owners who reside in Mississippi and are engaged in hauling pulpwood and hardwood logs to Bogalusa industries must buy Louisiana license plates. This is the first time that this has been enforced in this section and the efforts of individual citizens and organizations failed to have the law set aside this year. Just how it will effect Bogalusa industries remains to be seen. The Mississippi truck owners state that they are unable to pay two license taxes.

Thousands of drug stores and drinking stands in Mississippi transferred from glass to paper cups as amended rules and regulations of state board of health went into effect March 12. Regulations were adopted by the board at Jackson, December 11 for the adoption of paper cups or sterilization of glasses and spoons.

George W. Powers

George W. Powers, consulting engineer for the Fibre Board Plants of America, died at his home in Memphis, late in March. He was 56 years of age.

Mr. Powers was a native of Vermont and was connected with the wood pulp industry for a number of years, taking part in the erection of many plants in the United States and Canada. His most recent work was in the south where he was engineer in the erection of a mill for the Chicago Mill and Lumber Co. at Greenville, Miss. completed a few months ago. He leaves a wife and two children.

Colonel D. T. Cushing, vice-president and general manager of the Great Southern Lumber Company, Bogalusa, La., received new honors at a board meeting recently when he was made vice-president of the Bogalusa Paper Company. His record was highly praised by C. W. Goodyear, treasurer of the company, and each director paid a compliment to the manner in which Mr. Cushing had operated the Great Southern Lumber Company since he took over the active management a little more than two years ago.

With practically the entire original timber crop of Winn parish exhausted and hundreds of thousands acres available for, and most of it now growing, young pulpwood timber and with every other requisite of paper manufacturing at its door, Winnfield, La., is expected to be the location in the near future of a large paper manufacturing plant if plans of a group of local business leaders and outside financiers materialize.

Announcement is made by the International Paper Co., New York, that E. L. Crooker is now associated with the company in connection with newsprint sales. Mr. Crooker's headquarters will be at the New York office.

John W. Blackford, for the past eight years with the Torrington Company and for the last two years manager of its Detroit office, has joined the sales organization of Norma-Hoffmann Bearings Corporation, Stamford, Conn.

ENGLAND

Move for Standardization of Board

The Wholesale Stationers' Association will shortly be conferring with the Master Printers' Federation in order to arrive at some satisfactory standard for the thickness of boards of various kinds used in the trade. Like several other sections of the paper trade in this country this particular branch is in need of a rationalization process which will simplify the distribution and selling of paste, pulp, and triplex boards. It has been suggested that the only sensible and correct mode of description for all boards will be to take the royal size (20 by 25) as the standard, and then to denote the thickness by the micrometer number in one-thousandths part of an inch, and the weight per hundred sheets, for, it is pointed out, that, in this way, if a low caliper number is coupled with a rather heavyweight, it will indicate a board with a high finish, and vice versa.

Reviewing the situation, one authority says that it is obvious that as about 75 per cent of the boards in regular use are either pulp of triplex, it is misleading to continue to describe them by the terms which were applicable to pasteboards. Even many of the real pasteboards have actually only three sheets, though the thickness may be equal to six-sheet, the center being a pulp-board of sufficient substance to make, with the two outer sheets, the requisite thickness.

Patrick McCarthy has been appointed general secretary of the Papermakers' Association of Great Britain and Ireland at 26 Farringdon street, London, E.C.4. Mr. McCarthy is a native of London and was assistant secretary of the association under the late A. W. Foster.

Report of Paper Trade

Speaking at West Hartlepool recently, George Renshaw, managing director of the Durham Paper Mills, explained how that organization, assisted by the 16 duty on imported wrappings and packing paper five years ago, started making that type of paper which had formerly been a foreign monopoly. Since commencing operations in this field in 1926, he said, many thousands of pounds had been spent upon new machinery; approximately $400,000 had been paid in wages; $170,000 had been spent upon transport, and 50,000 tons of coal had been used. The only material imported had been 34,000 tons of wood pulp which could not be obtained in this country, and he felt that his firm had responded well to the advantages given them by the safeguarding duty.

Some idea of the progress made by this firm of papermakers under the protection of the tariff may be gleaned from the following figures indicating the tonnage output for each of the five years:

1926	1	ton
1927	1,880	tons
1928	3,833	tons
1929	6,708	tons
1930	7,045	tons

This gives a total of 19,467 tons, and although there was every indication of continued progress, the recent threat of the withdrawal of the duty has tended to make things unsettled.

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Single Control of Every Step In Producing Equipment — From Plan to Performance —

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Through the extensive facilities and resources of our organization, these same engineers who plan with you the system you need, also personally supervise every step in the production of your equipment—drawings, specifications, building and installation.

There is no delegating of outside interests to fulfill any of your requirements with consequent loss of time and additional expense. Our single control of every step in producing your equipment affords economies that are reflected in your costs. The finished job is right—in every way.

No pulp or paper mill heating and ventilating job is too large or too small to be handled more advantageously and economically with our knowledge, experience and manufacturing facilities.

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ROSS SYSTEMS
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Canadian News

Further Drop in Newsprint Output

The newsprint production statistics for February are distinctly disappointing, revealing a drop that is far wider than any that might be dictated by seasonal variations or the fact that the month of February was shorter than the preceding month. During that month the operating ratio of Canadian newsprint mills dropped to a new low of 55.4 per cent of rated capacity, as compared with 57.3 per cent in January and 69 per cent in February 1930. The production amounted to 164,552 tons, as compared with 184,339 tons in January of this year and 189,154 tons in February of last year. During the first two months of this year Canadian mills produced 347,209 tons, a decrease of 49,123 tons, or about 12 per cent, from the output of the corresponding two-month period of last year, while the production of the United States mills for the same period showed a drop of 19 per cent on the same basis.

Exports of newsprint from Canada during February, according to the report of the Dominion Bureau of Statistics, were valued at $8,086,266. This contrasts with a value of $8,641,937 in the preceding month and $9,418,742 in February of last year. Of the total newsprint exports for February of this year, the United States took $7,497,063.

Canadian newspapers have taken steps to reduce their consumption of newsprint with a view to recovering in some measure the loss of revenue through a smaller volume of advertising. For instance, on March 15 all the Toronto newspapers reduced the width of their columns from 12½ ems to 12 ems. This will effect a saving, not only upon newsprint, but also upon ink, postage, etc., the total saving being estimated at from 4½ to 6 per cent, of which 4 per cent will be in newsprint. One newspaper estimates that it will save around $40,000 a year on newsprint, and a saving of another $40,000 in newsprint is to be made by one paper by cutting out returns from news vendors, these returns having been found to use up that amount of newsprint.

It is estimated that last year the total newsprint requirements of Canadian publishers amounted to 173,000 tons, as against 218,000 tons in 1929. Valued at $55 per ton, this would mean that Canadian publishers last year bought newsprint to the value of $9,515,000, as compared with $12,900,000 in 1929, a drop of $3,475,000.

The Canadian exports of pulp and paper in February were valued at $10,934,205, a decrease of $456,098 from the previous month. Pulpwood exports for the first two months of this year were 152,713 cords valued at $1,363,172, as compared with 258,336 cords valued at $2,400,358 in the corresponding months of last year.

Newfoundland Government Threatened with Suit

Announcement by the Newfoundland Government of a move in its great Gander Valley newsprint project, promptly followed by a threat of an action for $10,000,000 damage against the Government, and this in turn followed almost immediately by the placing of the Reid Newfoundland Co. in the hands of a receiver, created a sensation in newsprint circles last month.

The Government's announcement came in the speech from Throne at the opening of Parliament. This speech, forecasting the legislation to be introduced at the session, stated that the text of a proposal made by Allan Butler, financial backer for the Reid Newfoundland Co., to the Government in relation to the Gander timber areas and water powers would be submitted. This area, formerly under the control of the Reid Newfoundland Co. and now understood to be held by Mr. Butler under mortgage, has been the subject of negotiations for several years, and formed the basis of a project last year whereby a subsidiary of the Hearst syndicate, in which Canada Power and Paper Corp., had a substantial interest, proposed erecting a mill with a daily capacity of 1,000 tons, provided additional timber could also be obtained in Labrador. Mr. Butler submitted a basis of settlement designed to prevent disintegration of the Gander Valley property, but without prejudice to any rights which Mr. Butler or the Reids may now possess.

Canadian Pulpwood Obtainable at Low Prices

It is reported that paper mills in Northern New York relying on Canadian pulpwood are now obtaining it at the best price in several years. The decline in price has been made effective within the past few months and overproduction in the market is cited as the cause and not the competition of the Russian product.

With Canadian mills reducing their production to absorb the overproduction of paper which has been demoralizing the market and lowering prices for sometime past, the timber cutters failed to decrease their harvest and the result has been that the pulpwood dealers have a considerable surplus at their terminals which cannot readily be disposed of. It is expected, however, that there will be a marked restriction in the cut this year in order to bring about a stabilization of the market.

❖ QUEBEC ❖

C. Howard Smith

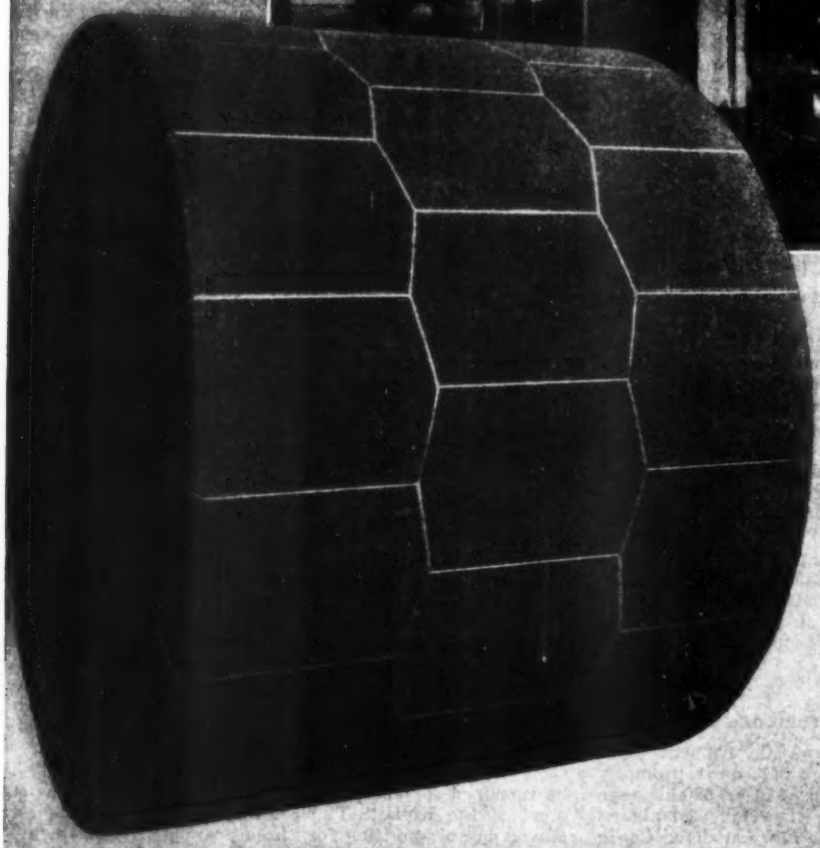
C. Howard Smith, one of the most striking and spectacular figures in the history of the Canadian pulp and paper industry, passed away suddenly last month at the home of his son, Edmund Howard Smith, in Westmount. He was in his fifty-ninth year.

Endowed to a remarkable degree with the qualities of imagination, energy and intrepidity, Mr. Smith had a career of rare achievement which brought him to the front rank among pulp and paper leaders in this country. He had a mind which looked ever forward to new and greater accomplishments, and he put the impress of his personality on the enterprises which he founded and encouraged. When still in the prime of life, he succumbed to a heart attack, which came only a few weeks after his retirement as president of the Howard Smith Paper Mills, Ltd.

Charles Howard Smith was born in St. Johns, Quebec, and was the son of the late Edgar Russell Smith. He received his early education at the St. Johns High School, and upon graduation entered upon a branch of the business with which he was to be connected all his life by starting work in his father's printing and publishing business at St. Johns. He soon joined the staff of the Canada Paper Co., with which he remained for one year, until he was offered the management of the Kinleith Paper Mills, which he accepted. He stayed in this position for three years and then started in business as a paper jobber, representing Alex Bunting and Co. in 1900, and Ritchie and Ramsay, Ltd.

The founding of the Howard Smith Paper Co. came in 1912, when Mr. Smith organized and built his first mill at Beauharnois for the making of high-grade paper. A tremendous demand for this high-grade paper and the general success which had been encountered by the company led to the purchase in 1916 of the mill at Crabtree Mills, Quebec. In 1919 Mr. Smith became president of the Toronto Paper Co., Cornwall, Ont., after purchasing all the shares of the company. He added four machines and a pulp mill to the productive capacity of the plant. In addition to being president of these two companies, Mr. Smith was also president of the Canada Paper Co., the Alliance Paper Mills, Ltd., the George-

IN FINLAND—



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NORTON
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town Coated Paper Mills, Ritchie and Ramsay, Ltd., and Lincoln Pulp and Paper Mills. He was also a director of the Federal Paper Co., and of Canada Power and Paper Corp.

Mr. Smith was elected president of the Canadian Pulp and Paper Association in 1917. During the session of 1919-1920 he was chairman of the Quebec Division of the Canadian Manufacturers' Association and president of the Canadian association in 1923-24.

He had retired from the presidency of the Howard Smith Paper Mills at the beginning of this year owing to ill health. His heart had been weak, and he succumbed to a fatal attack which came very suddenly on March 16.

Mr. Smith is survived by his wife, formerly Miss Alice Young Day; one son, Edmund Howard Smith, vice-president and general manager of the Howard Smith Paper Mills; three brothers, Edgar M. Smith and Gerald N. Smith, of Montreal, and W. W. Smith, New York; and two sisters, Mrs. Molly J. Cartmer and Miss Charlotte A. Smith, of Kingston.

At the wage scale conference held last month in Montreal, immediately following the convention of the International Brotherhood of Paper Makers, resolutions advocating the five-day week and the six-hour day were adopted. The papermakers' union believes that the five-day week and the six-hour day will solve the present unemployment situation. Instead of a three-tour day there will be four tours, with no increase in the present wage scale per hour. This will be a concession on the part of the union as its part toward doing away with unemployment and depression.

Contract Awarded for Eddy's Filtration Plant

The contract for the erection of the new water filtration plant for the E. B. Eddy Co., Hull, involving approximately $250,000, has been awarded to the Foundation Co. of Canada. This contract represents an initial step in the rehabilitation of the Eddy newsprint and fine paper manufacturing facilities. The immediate capacity of the filtration plant will be 36,000,000 gallons per day, which will take care of the present needs. The plant, however, is designed for an ultimate capacity of 60,000,000 gallons a day, approximately one-third of which will be chemically treated and filtered and the balance screened.

On completion of the filtration plant, it is expected that conditions will warrant the complete rebuilding and equipping of sulphite mill, bleaching plant and groundwood mill. The intention is to consolidate the boiler capacities and to replace the present units by new and larger ones. Other improvements include the re-arrangement of wood storage and additional handling facilities, new wood rooms and pulp storage and handling equipment. The final phase will be undertaken to provide for the installation of four new fine and specialty paper machines of the fourdrinier type and one cylinder machine. This installation will entail additional pulp-preparing equipment. To round out the program, adequate finishing, converting and shipping facilities are planned, together with a new head office building.

St. Lawrence Corporation Earnings Lower

The financial statement of the St. Lawrence Corp. and constituent companies for the year ended December 31, 1930, covers the first six and a half months' operations of that company since its inception in 1930 and the complete year's operations of the constituent companies, the results of which are shown in a consolidated balance sheet. The organization of St. Lawrence Corp. through the consolidation of St. Lawrence Paper Mills Co., Brompton Pulp and Paper Co. and Lake St. John Power and Paper Co. made possible certain administrative and other economies of which advantage was taken insofar as the limited period of consolidated operations permitted. Further advantages in this respect are expected.

The report shows profits from operations, after reserve for income tax, of $2,759,874, as compared with $3,206,463 earned by the three constituent companies in 1929. Provisions for depreciation and depletion totalled $987,631, against $802,792 in the preceding year, and bond and debenture interests totalled $520,000, leaving a net profit of $1,252,243, against $1,883,671 in the preceding year. All dividend requirements on the preferred stock of the St. Lawrence Paper Mills and the Class A preferred shares of the present company were paid, these dividends totalling $1,455,040, making a debit for the year of $202,796, which was appropriated from the earned surplus, the latter being shown at $1,924,564, against $2,131,649 at the end of 1929. The strong liquid position of the company was more than maintained, with net working capital at the end of 1930 amounting to $5,990,419, against $5,871,453 at the end of 1929.

Capital Re-Organization of Canada Power and Paper Essential

The third annual financial statement of the Canada Power and Paper Corp., for the year ended December 31, 1930, reveals an operating profit, including income from investments and other revenue, at $6,184,955, as compared with $8,604,723 in 1929. In the last report operations of Anglo-Canadian Pulp and Paper are included for the eight months from May 1, 1930, and thus total assets are shown at $212,974,611, against $190,091,556 at the end of the preceding year. The balance sheet reveals bank loans at the end of 1930 at $14,558,000, contrasting with $7,903,750 at the end of the preceding year, and inventories higher by over one and a half millions, while net working capital in the 1930 report at $11,470,712 compares with $27,338,471 at the end of 1929.

President J. H. Gundy, in the course of his report to shareholders, stated that the operations for the period reflect the difficult times attending the newsprint industry, which has been suffering from a policy of aggressive building of new mills. The serious overexpansion of mill capacity has been accompanied, he stated, by a decline in consumption in 1930 of approximately eight per cent, this being the first year which had failed to show an increase in consumption since 1921. During the year the mills of the company operated at only 56 per cent of capacity, against 77 per cent in the preceding year.

Directors were re-elected, with the addition of F. G. Bush, who fills the vacancy caused by the death of the late C. Howard Smith.

J. J. O'Connor, superintendent of the Crabtree Division of Howard Smith Paper Mills, has decided to step out for himself and has taken over the plant of the Warren Parchment Co., at Dexter, N. Y., where he intends to manufacture a line of insulating papers. He has given 16 years of his best efforts to the Howard Smith Paper Co., having been located for 11 years at the Beauharnois Division and five years at the Crabtree Division. A banquet was tendered by the management and staff of the Crabtree Division to Mr. O'Connor on March 9, at the Beaver "S" Inn, on the occasion of his departure. George Bidwell, night superintendent, will take over Mr. O'Connor's duties, and Jack Gilham is succeeding to Mr. Bidwell as night superintendent.

The Anglo-Canadian Pulp and Paper Mills, of Quebec, are $157 richer than they would have been if the Board of Railway Commissioners had approved the claim of the New York Central Railway and the Canadian National Railways against that company, for the collection of customs bonding charges on 157 shipments of newsprint destined for export via New York. In a ruling issued at Ottawa last month, the Board, having been asked for an interpretation in a matter respecting railway tariffs, reiterated its support of the following ruling: "On carload shipments or less than carload shipments of 5,000 lbs. or over, the bonding charges will be assumed by the lines interested." This applies to export traffic from Canadian points handled via United States ports. The bonding charge in the present case was $1 per shipment.

Following an investigation, A. W. Mellon, Secretary of the Treasury, at Washington, D. C., signed an order last month finding no dumping of fiber board on the United States market from the Province of Quebec. Customs officers were therefore authorized and directed to proceed with appraisement

Turn Your Rag Waste Into Profit

IT IS absolute economic folly to discard the rag waste from continuous beating systems in board mills when a Marcy Rod Mill will convert it into valuable paper stock at a very low power cost per ton.

This waste is charged to the Marcy Rod Mill in a tangled mass of rags, rope, string, wire, shoes, rubber, wood and other refuse always found in unsorted papers. After pulping this mass in a Marcy Rod Mill separation is simple, while before it was impossible. The valuable pulp is carried off while the heavy "junk" settles out.

One 5′ x 10′ Marcy Rod Mill with 80 H.P. will convert 4 tons of this rag waste material into high grade paper stock in 24 hours. It permits the paper manufacturer to utilize material which he now throws away and one of the easiest ways to make money is to utilize all of your waste products.

This additional production at such a low power cost will quickly pay for the installation of a Marcy Rod Mill. One of our engineers would be glad to visit your plant and show you how you can improve your product and reduce your manufacturing costs through the use of a Marcy Rod Mill. No obligation, of course.

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Manufactured for us in Canada by
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MASSCO

and liquidation of entries of fiber board imported from the Province of Quebec as though no suspicion of dumping had developed.

At the end of March the Ste. Anne Division of Abitibi Power and Paper Co., closed its mill at Beaupré, throwing between 300 and 400 men out of work. It is not known how long the mill will be closed, but it is not expected that it will be started for about a year.

Largest Electrical Unit

In its plant at Chute à Caron, the Alcoa Power Co. will soon install what is said to be the four largest waterwheel generators in the world. Each of these generators will be capable of producing 77,000 hp. and thus the four will produce 308,000 hp., an amount greater than the combined developed waterpower of the provinces of Alberta, Saskatchewan and New Brunswick.

One of the features of these generators is their compactness. The outside diameter of each is 31 feet and their overall height is 32 feet. In comparison with other large generators, this is extremely low. The total weight of each generator is approximately 1,200,000 pounds. Over 450,000 pieces are used in the manufacture of each generator. The four generators have been built by the Canadian Westinghouse Co., at Hamilton, Ont. Two have been installed and the other two are at present being installed.

Application has been made to the Legislature by the St. Regis Paper Co. of Canada to have its Quebec charter amended by changing the authorized capital stock of the company from 100,000 shares of no par value common stock to the same number of shares of a par value of $5 each; and further to have a clause inserted to the effect that in the future the authorized common share capital shall be $500,000.

The fiscal year of Price Bros. and Co. ended on February 28, and while no official intimation is forthcoming, well-informed quarters suggest that the company's financial statement for that period will show the common stock dividend of $2 fully earned. This company has built up a large productive capacity out of earnings over a long period of years, avoiding excessive capitalization, enjoys a diversified output of products and has an important investment account. All in all, it is not difficult to understand how this company, in the face of the unusually adverse conditions in the newsprint industry, is able to have the distinction of being the only paper company paying a dividend on its common stock.

❖ ONTARIO ❖

Minnesota and Ontario Paper in Voluntary Receivership

On February 28, the Minnesota and Ontario Paper Co. was placed in voluntary receivership, Edward W. Backus, president of the company, E. W. Decker and Charles R. Fowler being named receivers. The assets of the company are said to be greatly in excess of both the secured and unsecured indebtedness, and warrants the expectation that all creditors will eventually be paid in full. Seymour Backus, vice-president, said the receivership resulted from the present condition of the money market and the depressed conditions in the newsprint industry. These conditions rendered it impossible at this time to refinance maturing obligations on a safe basis and receivership was decided upon in order that the rights of all creditors and stockholders might be protected pending further negotiations leading to financing the company's obligations. The Minnesota and Ontario Paper Co. is the only one of the 17 subsidiary companies controlled by the Backus-Brooks Co. which is involved in the receivership proceedings.

The receivers have been authorized by a district court to raise $635,000, by the issue of receiver's certificates, payable in six months and bearing six per cent interest. These certificates have priority over all unsecured indebtedness of the Minnesota and Ontario Paper Co., but are subordinate to the first mortgage which is dated April 5, 1925, and all bonds and coupons secured therein. The certificates were sold to the International Lumber Co., which is another Backus controlled company, and the proceeds are to be used as working capital to pay the wages and other operating expenses of the company.

After having been closed down for three months, with the exception of two weeks early in February, the company's paper mill at Fort Frances, Ont, resumed operations on March 2. According to an announcement made by president Backus when the company was placed under receivership, operations of the company's mills at Fort Frances and at International Falls, Minn., will not be interfered with, and all of the employees will be retained.

Although its earnings position is understood to have been maintained, on account of its poor current position the Great Lakes Paper Co., another Backus-Brooks subsidiary, has defaulted on the interest on its six per cent first mortgage bonds, due March 1. The company, however, has 60 days to meet the interest payments, and plans for doing this are said to be under way. Investment bankers representing the company have written to the holders of the bonds stating that this failure to meet the coupons is attributed to the unsatisfactory conditions now prevailing in the newsprint industry.

On Tuesday, March 26, the hearings were started in the $3,320,000 suit filed against E. W. Backus and the Minnesota and Ontario Paper Co. by minority stockholders of the National Pole and Treating Co., after Judge W. C. Leary had refused the request of the defendants for postponement of the case until May. The plaintiffs are Miss Cora Neile and Frank G. Moore, who seek to have the Minnesota and Ontario Paper Co. return to the National Pole and Treating Co. about $3,320,000 which, it is claimed, E. W. Backus loaned from the latter concern's treasury to the paper company. Backus admits having made the loan, but declares it was done with the stockholders' authority.

Urge Investigation of Newsprint Institute

In the course of an address delivered in the Ontario Legislature last month, Brigadier-General D. M. Hogarth, M. P. P. for Port Arthur, demanded that the Government investigate the structure and operations of the Newsprint Institute of Canada, urging such an investigation with a view to the reallocation of tonnage contracts to Ontario newsprint mills in proportion to their labor needs. It was freely reported, in ministerial circles, after his address, that such an investigation was favored in governmental quarters.

The gist of General Hogarth's remarks about the Newsprint Institute was that it had been formed "for the general idea of price-fixing," that it "sought to jack up a slipping price," and that "while other concerns saw into the future and slipped in and began signing up contracts at $45 a ton, the Institute clung to its $55 price." General Hogarth expressed considerable indignation over the present state of affairs and particularly at the province of Ontario having (as he stated) lost, last year, newsprint business worth between $25,000,000 and $30,000,000. Naturally enough, while, as he says, the newsprint industry "touches every class of community," nobody has more reason to regret its present lack of prosperity than those who are engaged in the direction of its operations.

At its Port Arthur Division, Provincial Paper is engaged in making various improvements. It is installing a new Cameron rewinder and suction press rolls. It is also building a sulphite storage room and enclosed loading shed. In addition, it is also installing a considerable amount of minor equipment for the general improvement of its Port Arthur mill.

After several years of experimenting, two members of the Capital Wire Cloth Manufacturing Co., of Ottawa, J. R. Buchanan, president, and Thomas M. Cray, have perfected and applied for patents on a seamless joint for fourdrinier wires, and the success so far attained in the practical operation of this joint demonstrated that it will be the most startling improvement ever introduced to the fourdrinier wire industry.

RYTHER SLASHERS

SINGLE and MULTIPLE SAWS
FOR REDUCING
LONG LOGS TO SHORT LENGTHS

One to eight saws. Saw diameter 52″ to 72″ for large and small wood. Structural Steel frame and all parts designed for extra heavy and continuous service. Made to meet all conditions. Complete units and self-contained, ready for installation. Will cut logs up to 30″ diameter. Complete plans and estimates on application.

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Dividends from Pumps!

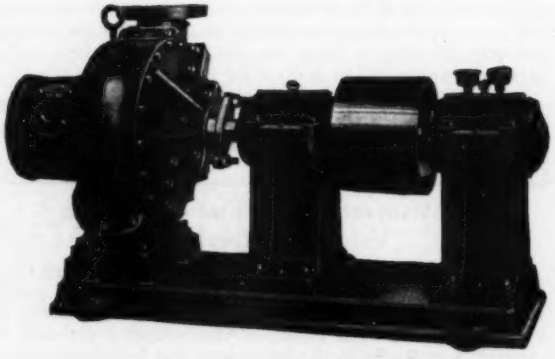
· · · less Cost for moving Stock · · ·

Since the Power cost for moving stock is one of the largest items of overhead in paper mills, anything that lowers this cost tends to increase dividends.

Frederick stock pumps take less power. More than that, because of rugged design and oversize components, Frederick pumps minimize shutdowns.

These savings—*less cost for power, freedom from costly shutdowns*—explain why many of the country's largest mills use Frederick pumps. Indeed, one mill uses *over one hundred Frederick pumps,* with a resulting multiplication of savings—dividends from pumps!

Frederick makes pumps for every type of service, any drive. *WRITE FOR LATEST BULLETINS,* or consult our Engineering Department for recommendations, without cost to you!



Type "TS" Frederick Centrifugal Pump for Pumping Thick Stock, Arranged for Belt Drive.

FREDERICK PUMPS
The Frederick Iron & Steel Co., Frederick, Maryland

Several wires with this joint installed are now in service, and the results obtained are beyond the most sanguine expectations of the patentees.

For the year ended December 31, 1930, the financial statement of the Abitibi Power and Paper Co. shows, after all charges including interest, full allowance for depreciation and depletion and preferred dividends, a balance of $513,836 available for the 1,088,117 shares of common stock outstanding, or 47 cents per share. As no dividends were paid on the common, this amount was carried forward to profit and loss. This showing was achieved in a year of unusual difficulties in the newsprint industry, when the average ratio of output to capacity for Canadian mills fell to the lowest on record.

After 23 years of service with the Dennison Mfg. Co., Toronto, manufacturers of tag and other paper specialties, R. G. Kennedy has resigned the position of manager, and intends taking a well-earned rest before re-entering the business field. In the meantime, H. E. Lancaster, assistant manager, has been promoted acting-manager in Mr. Kennedy's place.

Rausch Succeeds Gain as Supt. of Interlake

George E. Rausch has been appointed mill superintendent of the Interlake Tissue Mills, Ltd., at Merritton, following the resignation of C. Nelson Gain, formerly of the Don Valley Mills, Toronto, and for some years in charge of operations at Interlake. Mr. Rausch is widely known in the paper trade both in Canada and the United States.

He was born at Kaukauna, Wis., in 1891 and began his early papermaking experience with the Thilmany Pulp and Paper Co. at Kaukauna, in the Fox River Valley. He then spent several years with the Detroit Sulphite Pulp and Paper Co. at Detroit. Following this he spent three and a half years with the Interlake Tissue Mills at Merritton. Later he left Interlake to enter the service of the Forest Castle Paper Co. in the capacity of superintendent. For the past year Mr. Rausch had been superintendent of the Dunn Sulphite and Paper Co., Port Huron, Mich., which position he left to become superintendent of the Interlake mill.

It is understood that Mr. Gain will enjoy a short rest before re-entering the papermaking field.

The Spruce Falls Power and Paper Co. report a very fine operating record for February. With three machines making newsprint, the Kapuskasing mill established a new average daily record for the month of 413.7 tons. This excellent performance was accomplished without speeding up the machines beyond the 1,000-foot-per minute rate.

❖ NEW BRUNSWICK ❖

Growth in the manufacture of pulpwood within the province as a result of the policy of encouraging the manufacture of pulp and paper in New Brunswick is one of the most interesting features dealt with in the 70th annual report of the Department of Lands and Mines, by Hon. Charles D. Richards, the minister. An increase of 30 per cent in the amount of pulpwood manufactured into pulp or paper in New Brunswick over the preceding year is shown.

St. John Co. to Increase Power Facilities

As a result of an inquiry regarding the purpose of a bill to be brought before the present session of the New Brunswick Legislature, providing for the taking over by the Gatineau Power Co. of the charter rights and properties of the Saint John River Power Co., Neil C. Head, of International Paper and Power Co., New York, said that expectations of improved business conditions in the immediate future had made it necessary for the company to inaugurate plans to supplement the power development at Grand Falls, "either by additional storage facilities or by a steam plant, or both."

Mr. Head declared in this connection that the Saint John River Power Co. and the Gatineau Power Co. were both subsidiaries of International Paper and Power Co., and that their consolidation is designed to facilitate still further expansion in New Brunswick.

Upholding the Supreme Court of New Brunswick, the Supreme Court of Canada has dismissed the appeal in the case of the assessors of Grand Falls against the Saint John River Power Co. The effect of the judgment is that the town is not entitled to taxes on power generated by the company at Grand Falls.

The resumption of operations at the groundwood mill of the St. George Pulp and Paper Co., an International Paper subsidiary, is a bright spot in pulp production in the Maritime Provinces. This old mill was closed for about two years, then reopened for about nine months. Last July there was another shutdown. Now there is enough wood on hand at the mill yard to keep the plant supplied for a year. The resumption of manufacturing at this old mill comes soon after the disappearance from the publishing field of the Pulitzers, former owners and operators of the mill.

❖ NOVA SCOTIA ❖

Robert Macmillan, of the engineering staff of the Mersey Paper Co., Liverpool, N. S., has been making a preliminary survey of the hydro-development proposed for Lake Ainslie. The promoters of this development claim the cheap power that will be available will assure at least one pulp mill being established within a transmission radius of the station.

The Mersey Paper Co. recently dispatched a cargo of 3,300 tons of newsprint to the United States, the largest single shipment to leave the plant since its completion in 1929. The shipment was made from Liverpool, N. S., on the company's own steamer.

On inquiry at the executive offices of the Hinde and Dauch Paper Co. of Canada, Toronto, it was ascertained that, contrary to current reports, the company is not going to erect a plant at Halifax. It is understood, however, that the question of erecting a converting plant has been under consideration.

❖ BRITISH COLUMBIA ❖

The extension plans of the Sidney Roofing and Paper Co., of Victoria, have been temporarily deferred, awaiting improvement in business conditions. The work involves an estimated outlay of $250,000. The present capacity of the mill is 25 tons per day of building and roofing paper, felts, test boards and boxboard. P. W. Field, who has been representing the company in Vancouver, has been appointed sales manager.

Construction of a new 500-ton covered paper scow, to be ready for operation this month, is proceeding under the management of the Kingcome Navigation Co., subsidiary of the Powell River Co., at Powell River. This construction is necessary to meet the requirements of the increased newsprint output arising from the installation of the seventh paper machine at the paper mill at the end of last year.

British Columbia Pulp and Paper Co., during the year which ended December 31, 1930, recorded an increase in net earnings, and after depreciation, interest charges and preferred dividends, had an amount of $2,281 left to be added to surplus, raising that total to $58,440. The showing of the company is noteworthy in view of the conditions prevailing in the industry in Eastern Canada, which have resulted in part-time operations and drastic reductions in earnings.

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POWER TO PULLEY

NEW and important principles have been applied by Tentacular Engineers in the construction of Tentacular Transmission.

Coming in contact with the pulley face are strips of spongy, flexible, green leather which grip the pulley firmly enough to prevent slip and yet which leave it freely enough so there is no "braking" action.

Air cushions,—a common cause for slip,—are eliminated because the air is squeezed out into the air channels between the strips.

WITHOUT POWER LOSS

Hollow rivets of exceptional strength weld the strips to a backing of sturdy oak-tanned leather, leather that is tanned in the time-tested Alexander way to insure long life.

Tentacular is built to take its place as the most efficient belt transmitter of power.

In actual operation it is not unusual to find a proved record of 99% efficiency.

A booklet: "Highest Efficiency in Power Transmission" may help you solve your power problems. A copy is free on request.

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Combines the efficiency of an endless belt and the convenient take-apart feature. In general use on light, medium and heavy belts of all types. Made also in "monel metal". Eleven sizes. Sold the world over.

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❖ NORTHERN NEW YORK ❖

George Willard Knowlton

George Willard Knowlton, president of Knowlton Brothers, Inc., and former head of the St. Regis Paper Co., died Tuesday, March 18, at his home in Watertown, at the age of 91 years. Mr. Knowlton was one of the best known paper manufacturers in Northern New York. As head of Knowlton Brothers, Inc., and president of the Watertown National Bank he rose to a position of outstanding importance in Watertown. His associates in the paper industry, recognizing his ability, elected him president of the American Paper & Pulp Association, a position he filled with credit and honor.

Mr. Knowlton was the head of one of the oldest industries in New York state, an industry that has been in the Knowlton family most of the time since 1824 when it was acquired by Mr. Knowlton's father, who was also named George Willard Knowlton. The history of the mill dates back 16 years before that, when in 1808 in the settlement of Watertown, on the banks of the Black River, Gurdon Caswell built his first paper mill.

George W. Knowlton was born in Watertown, Aug. 17, 1839. He was educated in Watertown and at the age of 15 he went to work in the paper mill formerly run by his father but which was then operated by Chamberlain & Farrell. His first job was in the finishing room and he received 25 cents a day for his labors. For five years he worked for Chamberlain & Farrell, acquiring a thorough knowledge of the business. In 1861, the mill was taken over by Mr. Knowlton and his brother, J. C. Knowlton. From then on the brothers operated the mill until 1888 when J. C. Knowlton retired. George W. Knowlton carried on the business and was president of the firm at the time of his death. His son, G. Seymour Knowlton, now is the treasurer of the company.

As Knowlton Brothers expanded, the fame of George W. Knowlton grew. When the Ontario Paper Co. was organized and erected a mill at Glen Park, Mr. Knowlton was elected president, a position he held for some years. In 1900 he was elected president of the St. Regis Paper Co., and remained in that position about six years, then retiring as president but remaining on the board of directors. For some years Mr. Knowlton and G. H. P. Gould, Lyons Falls, were the largest stockholders in the St. Regis Co. In November, 1916, a deal was completed whereby a group of Watertown capitalists, including Floyd L. Carlisle, D. M. Anderson, C. C. Burns, Frank A. Empsall and D. C. Middleton, bought the stock held by Mr. Gould and Mr. Knowlton.

Mr. Knowlton is survived by his widow and five children.

Reforestation in New York State

The New York State Legislature adopted on March 30 a resolution proposing an amendment to the State Constitution, under which $20,000,000 will be spent over a period of 11 years for the purchase of land for reforestation purposes. The proposal will be submitted to the voters for ratification at the next election.

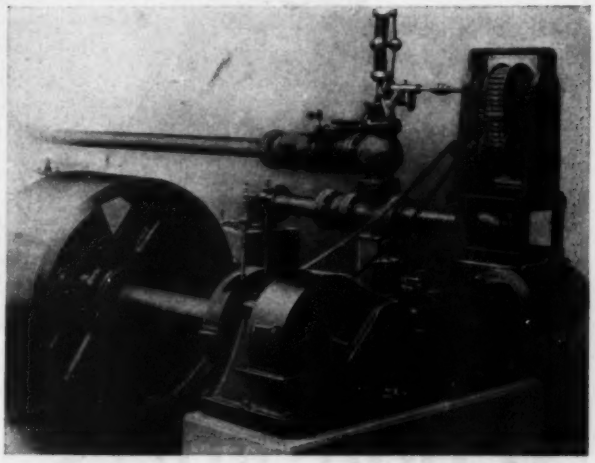
Under the terms of the amendment the State can buy such land and establish production forests for eventual cutting by the State which will be committed to the purchase of about 4,000,000 acres to be used exclusively for reforestation.

New Company Takes Over Warren Parchment

Papers have been filed at Albany incorporating the Ron-noc-o Paper Co., which has purchased from John J. Warren of Brownville the Warren Parchment Co. at Dexter. The officers of the new concern are John J. O'Connor, president; John J. O'Connor, Jr., vice-president, and E. B. O'Connor, secretary. John J. O'Connor has been connected with the Howard Smith Paper Mills, Ltd., at Montreal for the past 16 years. He will act as manufacturer and superintendent of the Dexter plant.

Manufacture of high grade specialties paper was started at the Dexter plant April 1, according to Mr. O'Connor. He

Varying Speeds— That's the Problem



Pickering Governors with steel chamber and monel trim are available for superheat and high pressure conditions.

Close regulation of engine speeds is vital to both quality and daily output in paper manufacture. Whenever uniform engine speeds are important, that's where Pickering Service is most valuable.

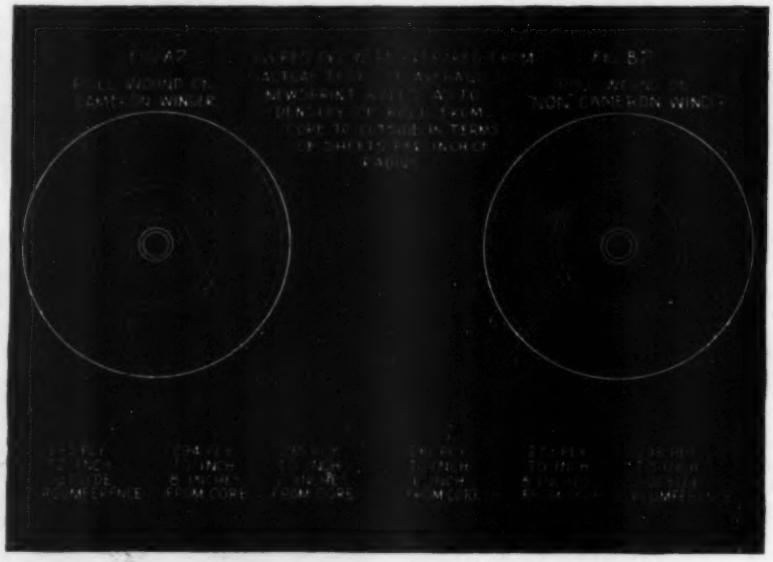
Nearly seventy years' experience in the development and design of governors and their adaptation to every conceivable engine requirement has taken the guess out of Pickering Engineering Service. This vast experience has enabled this company to bring its product up to a high state of mechanical perfection and to offer manufacturers many exclusive features in governor construction.

Because of the special importance of accurate control and sensitive adjustment of engine speeds in the paper industry, Pickering engineers have made special study of these problems. This service is available to any engine builder or to paper mills.

The Pickering Governor Co., Portland, Conn.

Established since 1862

PICKERING GOVERNORS



GOOD ROLLS ARE ESSENTIAL

Common practice leads us to judge paper only by its quality as far as weight, finish and tensile strength are concerned. But, a definite quality equally as important is the character of the rolls in which any grade of paper is furnished to the ultimate consumer. Rolls of newsprint and bookpaper accurately cut and firmly wound enable high speed presses to function at full speed and avoid loss of time and waste ordinarily due to faulty wound rolls.

CAMACHINE roll winders for paper mill service produce rolls of any kind of paper which insure high press speed; less web breaks; less wrinkles in web or slack edge; more even draw through presses; fewer splits in the edge of the web; more tensile strength in the web from less tension in winding; less core waste; less waste from damages in shipping and handling; and greater weight and linear length from all rolls.

NEW FEATURE FOR REVERSING WEB IN WINDING. CAMERON PATENTED METHOD WINDS ROLLS WIRE SIDE IN OR OUT

CAMERON MACHINE COMPANY

61 Poplar St. Brooklyn, N. Y.

states that the equipment at the Dexter mill is adapted to the manufacture of these specialties, which include manifold, parchment and high grade kraft paper. It will not be necessary to install any new machinery.

The Dexter plant employs about 30 persons. Previous to its sale to the O'Connor interests it had been idle for almost two years.

Thomas E. Warren

Thomas E. Warren, 59, prominent Ticonderoga paper manufacturer, died Thursday, March 5, at Albany City hospital. Mr. Warren, a native of Glen Park, had been in the paper mill business over 40 years. His first position was at Niagara Falls where he remained three years. He then went to Ticonderoga where he was long associated with the Ticonderoga Pulp & Paper Co. For years he was general manager and part owner of the company.

Mr. Warren was also responsible for several inventions which materially aided the paper industry. He invented the Warren doctors which are installed on calendars in many mills through the country.

Surviving him are his widow, a son and four daughters, two brothers and three sisters.

Make 9,000 Mile Trip in Airplane

The Lockport Felt Co., Newfane, N. Y., is demonstrating the value of saving time by using air transportation. On February 24, William H. Lee, treasurer and manager of the company, accompanied by Mrs. Lee and their 13 year old son, left in their Lockheed Vega monoplane for a trip to the Pacific Coast. They returned March 13, having flown a distance of 9,000 miles.

This trip has set a precedent for that locality and gives an indication that many companies will soon be using air transportation, combining pleasure trips with business. The Lees made the trip without difficulty and brought back the report that business all along the line is decidedly picking up.

The St. Regis Paper Co. has declared its regular quarterly dividend of 25 cents on the common stock and $1.75 on the preferred stock, payable April 1 to stock of record of March 10. The directors also approved the contract for the exchange of the company's holdings of 4,070,000 common shares of the Niagara Hudson Power Corp. for 2,170,666 shares of common stock of the United Corp.

Approximately 1,000,000 conifer trees a year will be planted in the Jefferson county forests starting this year, according to Russell Wright of Watertown, chairman of the supervisors' forestry committee. This year's planting will consist mainly of Norway spruce. The county has purchased 700 acres of land for reforestation purposes.

Papers in the action brought by the St. Regis Paper Co. against Philip L. Hano and the Harrisville File Folder Corp. to recover a balance of $20,000 alleged to be due on account for various kinds of paper purchased were filed in Watertown March 30. LeBouef & Winston, New York, are attorneys for the St. Regis and the defendant is represented by Attorneys Garfield & Seligson.

John A. Frost of Carthage, assignor to the National Paper Products Co. has perfected a dispensing cabinet for use with paper towels and two features have been recognized as patentable.

The Morse Chain Co., Ithaca, N. Y., announces the appointment of Walter W. Bertram as sales manager of the industrial chain division. Mr. Bertram has been manager of the company's New York office for the past eight years. A. B. Wray, former sales manager, has been appointed to the position of chief engineer in charge of all industrial chain engineering.

For improved opacity in filled and coated stocks

The paper industry is showing increasing interest in the use of Titanox-B (Barium Base) as a means of improving opacity in paper stocks.

Titanox-B is widely known in the paint, rubber, leather and ink industries for its exceptional whiteness, high tinting strength, chemical inertness, unusual dispersing qualities, and moderately *high* bulking value. In particle size, Titanox-B is one of the finest of all white pigments. These properties should help paper manufacturers solve some of their processing problems—depending on the process or the type of stock produced.

Titanox-B is a true, composite, opaque pigment . . . a white, fine, uniform powder consisting of Titanium Oxide precipitated upon and coalesced with barium sulphate (blanc fixe).

In some cases the use of Pure Titanium Oxide (TiO_2) — another of our products—in combination with china clay is desirable.

Write for further information regarding Titanox-B and Pure Titanium Oxide—prices, chemical properties, etc. Address our nearest branch.

TITANIUM PIGMENT CO., Inc.

Manufacturers of

TITANOX-B (Barium Base) TITANOX-C (Calcium Base)

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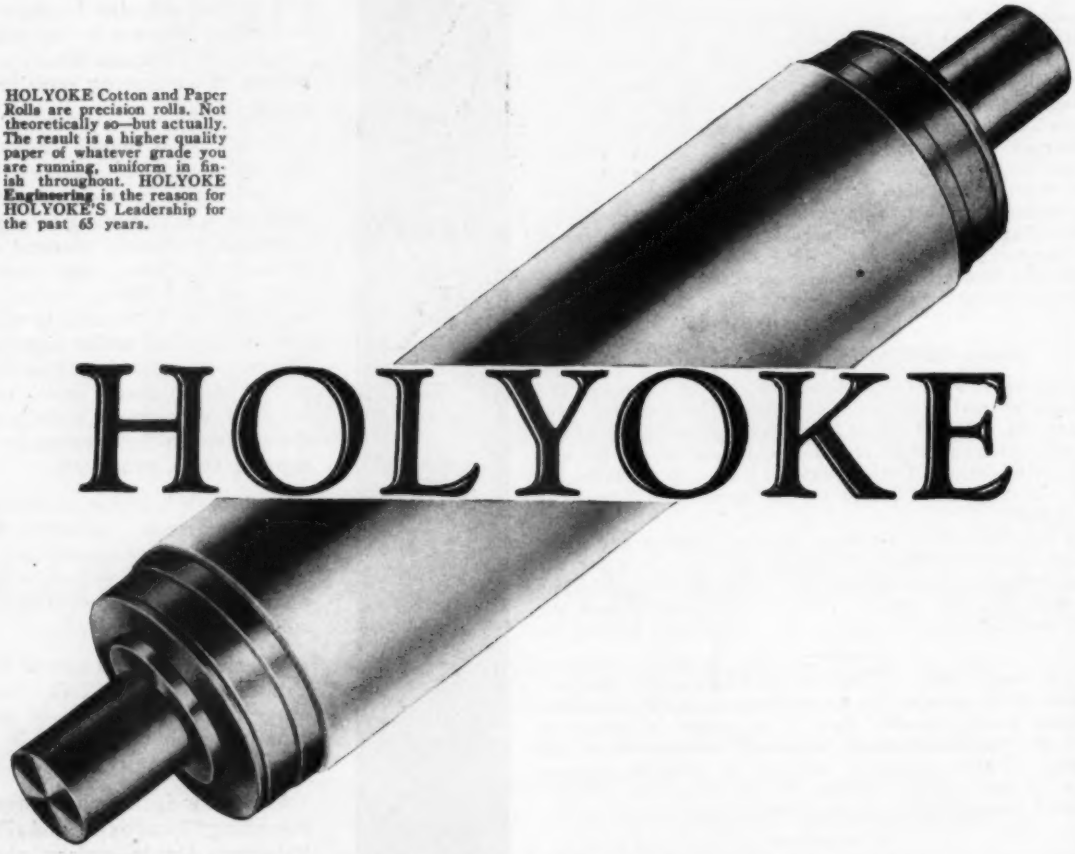

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HOLYOKE and HOLYOKE MACHINE COMPANY form a guarantee of Superior Workmanship and Performance. Long Engineering experience has built unquestioned excellence into every HOLYOKE MACHINE. HOLYOKE'S Precision finish, rugged construction, and fewer repairs make HOLYOKE Rolls the best buy for the long run and the perfect run.

Write HOLYOKE MACHINE COMPANY, HOLYOKE, MASS., Maufacturers of Super Calenders, Platers, Cotton, and Paper Rolls, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors.

The HOLYOKE MACHINE COMPANY

FOUNDED 1863

❖ NEW ENGLAND ❖

Hold Hearing on Extension of Boundaries

A hearing attended by about 30 representatives of leading Maine industries was held before the New England Freight Association March 31 at the South Station, Boston, on the vital proposal of the Maine Central R. R. to extend the boundaries of the Portland rate group eastward to include a number of important industries. The situation arises from the Eastern class rate Investigation which has resulted in the division of New England into a number of areas based on certain key cities. From these areas, rates to Central Freight Association territory will materially differ, which will largely destroy the old parity enjoyed by almost all of New England in shipments to the West.

The new areas as suggested by the commission and finally drawn up by the New England carriers project a Springfield rate area comprising western Massachussetts (except the Pittsfield area), and western Connecticut. The Boston group includes eastern Connecticut, all of Rhode Island, eastern Massachussetts and about half of New Hampshire. Next comes the Portland group including a portion of southern Maine and northern New Hampshire but excluding an important group of industrial cities—Augusta, Waterville, Rumford etc., which are just outside the line. The Maine Central R. R. would extend the boundary of the Portland area to take in these cities now in the Bangor group. Paper mills who deem it of vital importance that their present favorable east-west basis of rates should not be jeopardized by being moved down to a Bangor basis, are: Hollingsworth & Whitney Co., Cushnoc Paper Corp., Great Northern Paper Co., at Madison, Oxford Paper Co. and Continental Paper & Bag Mills at Rumford. Representatives of all these mills, as well as of other industries, presented evidence. The carriers except the Maine Central seemed timid about granting the proposal fearing that it would set a precedent for many similar requests elsewhere such as one that Berlin, N. H., Lincoln, N. H., and Cumberland Mills, Me., all important paper producing points now in the Portland area should be included in the Boston group for rate making purposes. The association took the appeal under advisement and will report within the month.

Twenty-seven paper and pulp mills in Massachussetts reporting to the State Department of Labor & Industries note a slight increase in the number of persons employed for February, there being 5,616 against 5,587 in January, of whom only 2,364 were on full time. The same mills would require 6,455 persons if they were operating at capacity.

Paper Company Entertains Craftsmen Club

For the second time in a few years the Boston Club of Printing House Craftsmen and guests, numbering some 200 were dined and entertained by Tileston & Hollingsworth Co. at the latter's Boston mill in the Hyde Park district of Boston. The Craftsmen carried through the program of a regular meeting inducting many new members. Guests at the head table, (dinner was served in the shipping room) included the Mayor of New Haven, Conn., Thomas A. Tully a printer, and his military aid, Standish Willcox, secretary to the Mayor of Boston, and Arthur V. Howland, vice-president and general manager of the Tileston & Hollingsworth Co.

The visitors were then conducted by members of the T. & H. staff on an inspection of the mill. All three T. & H. machines have been renewed within a decade and one about to be replaced was new only seven years ago. The company is generally considered a book paper mill, but its lines range widely, covering machine finish, supers, bible papers, 100 per cent rag books, sulphite bonds, and blanks. Mr. Howland expressed his company's intention of keeping the company's manufacturing method and equipment up to the minute. The company sells 90 per cent of its output direct to New England printers, the remainder through merchants outside of New

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There's no power loss due to slippage, even when run slack, on a Morse Drive installation. Morse Drives give 98.6% efficient power transmission from driver to driven unit—greater than any other form of transmission. Smooth, trouble-free operation and maximum efficiency, at a minimum operation and maintenance cost.

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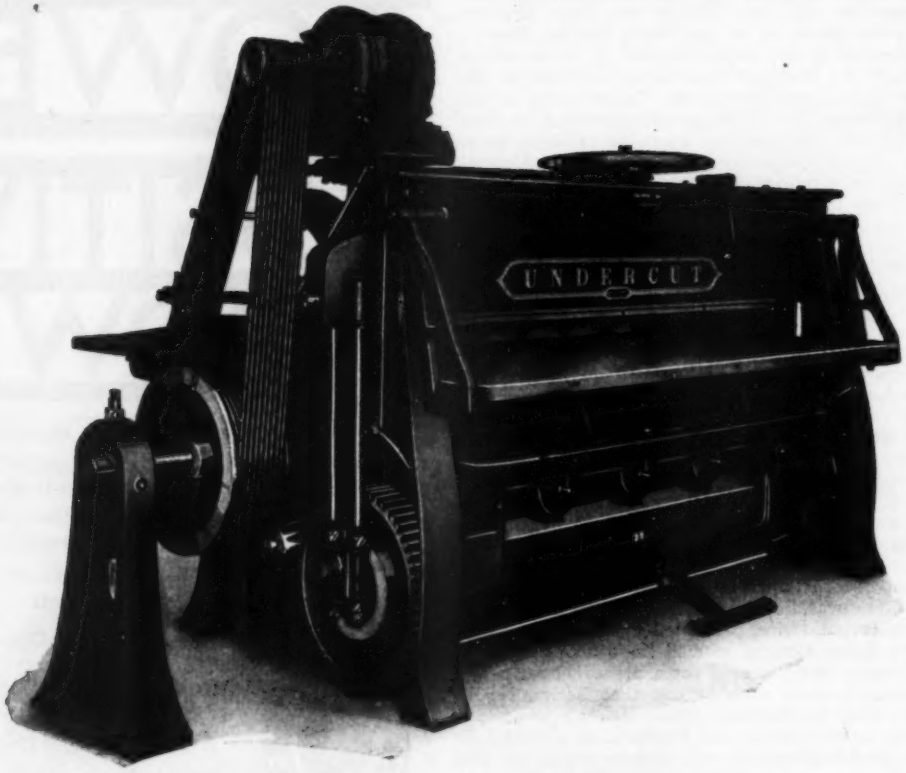
A Typical Morse Chain Drive Installation

MORSE CHAIN DRIVES

PAPER MILL MACHINERY



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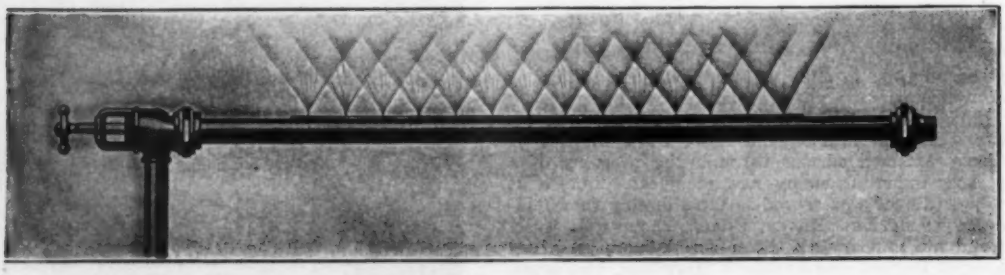

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PAPER MACHINERY—PAPER CUTTERS—PAPER BAG MACHINERY

England. It has a teletype system installed between its main office and mill, orders being recorded simultaneously at both places. It also operates its own waste paper sorting plant, purchasing waste paper directly from printing plants, banks and insurance companies, assorting it and selling to other mills what cannot be used.

Dennison Manufacturing co., largest New England converter of paper into novelties, tags, fancy tissues etc., has reported 1930 earnings at $5.61 per share on 27,546 of seven per cent preferred stock outstanding. This is after deduction of eight per cent dividends on debenture stock. The total earnings were $484,288 against $1,275,000 in 1929. There were no dividends on management or employee stock this year although in 1929 there was $765,643 available for that purpose. There are $2,888,000 of management and $1,000,780 of employee stock outstanding both of $10 par value.

First U. S. Experimental Forest

Establishment of the Gale River Experimental Forest a few miles west of Mt. Washington, the highest peak in New England, is announced by R. Y. Stuart, Chief Forester of the United States Department of Agriculture. This forest tract is within the White Mountain National Forest in New Hampshire and is the first experimental forest to be officially established under the new regulation, by which the Forest Service is to designate primitive, natural and experimental areas representative of the various forest regions of the United States.

The Gale River Experimental Forest includes approximately 1,320 acres. The area lies between two state automobile highways, making the tract readily accessible for research. Although it is only now being formally set aside for research work, investigations have been under way on this experimental forest since July, 1927. The Northeastern Forest Experiment Station of the United States Forest Service, with headquarters at Amherst, Mass., plans to develop this area very rapidly within the next few years, placing within it much of its permanent sample plot work.

The experimental forest is located in the spruce-hardwood belt, and is conveniently located for study of the pulpwood forest problems of New England.

It is understood that the Hurlburt Paper Co., of South Lee, Mass., is actively developing some interesting new lines of paper and a line of equipment for making a four-sided deckle edge. The company has presented several very attractive papers including Extra Fine Laid, an antique, deckle edge book; Etching Vellum, suitable for greeting card stock; Glenbourne paper and bristol and Hazelbourne deckle edge wove antique book. Frank A. Juckett, president and general manager of the company formerly with the Old Colony Envelope Co., has brought his long fine papermaking experience to bear in his well equipped plant and is receiving unusually good support from the merchants, who appreciate his versatility.

For the first time, the Brown Co., recently made public a complete report of its income account and balance sheet position. It is noted that practically the entire proceeds of $5,000,000 series B bonds sold in 1930 were expended for plant expansion and improvements at Berlin, N. H., and La Tuque. The company has marked off its timber lands to $15,600,000 from a 1926 valuation of $40,000,000 although the sum total of the timberlands is probably greater at this date. The company's quick assets are 6.4 times liabilities. The entire $20,000,000 of common stock is held by the Brown family, it is understood.

Advance Bag & Paper Co., has informed its stockholders that engineers are studying a proposal to move its big 158-inch fourdrinier from the mill at Howland, Maine, to the mill of the Southern Advance Bag & Paper Co., at Hodge, La. The Howland mill is not operating at present. According to the proposed plans which will be studied from a cost angle before a decision is rendered, the smaller 112-inch

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WANTED—Complete Kraft Pulp Mill, 30 to 50 tons production per 24 hours. Opportunity for idle mill with modern equipment. Send complete description, make of each machine, when built, lowest price, etc. San Rafael Paper Co., Box 469, Mexico City, Mexico.

WANTED—One 82 inch Cameron Rewinder, Type 14. Address Box 195, The Paper Industry.

WANTED—Tensile Testing Machine, prefer Schopper No. 1512 or Scott X-3. Recording Hygrometer, Conditioning Oven, Tachometer, Microscope, also 1924 edition "Colour Index." Address Box 193, The Paper Industry.

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machine will be left at Howland with enough pulpmaking equipment to serve it. At Hodge, the plan would be to construct additional pulp capacity with appropriate digesters, an extension to the paper mill and additional boiler capacity which would be fired by natural gas. It is this ample natural gas supply which contributes largely to the cost advantages in the South. The company's Boston office at 38 Newbury street states that a decision in the matter will be reached within a month.

Annual Meeting Boston Paper Trade Ass'n

Boston Paper Trade Association held its 45th annual meeting at the Algonquin Club, Boston, on March 18. Albert A. Smith, general manager of the Keith Paper Co., of Turners Falls, Mass., was re-elected president; Charles A. Esty, first vice-president; Frank B. Cummings, second vice-president; Thomas H. Casey, treasurer, and F. Bendil Tracy, secretary. The executive committee includes Norman Harrower, Charles W. Fields, W. Edwin Porter and the foregoing officers.

A fund of $5,000 that is being urged for a big two-day summer outing was announced in the treasury. Speakers included Governor Ely, of Massachusetts, who discussed his pet subject of state expenditures and borrowing to relieve unemployment, and General Smedley D. Butler, the Marine general of international renown, who spoke on the crime problem from a personal knowledge of criminals and their methods gained while head of the Philadelphia police.

Dodge & Nixon Address Purchasing Agents Committee

William Nixon, of the Moore & White Co., Philadelphia and former vice-president of the American Writing Paper Co., Holyoke, spoke to the paper committee of the New England Purchasing Agents Association on developments in paper manufacture. Mr. Nixon touched briefly on the rag-purified fiber controversy and urged an open mind on the subject. He also described methods taken by mills to preserve the correct moisture in cased paper shipments to large users by utilizing very freely waterproof paper lining not only for bottoms and sides but as a hood over the top.

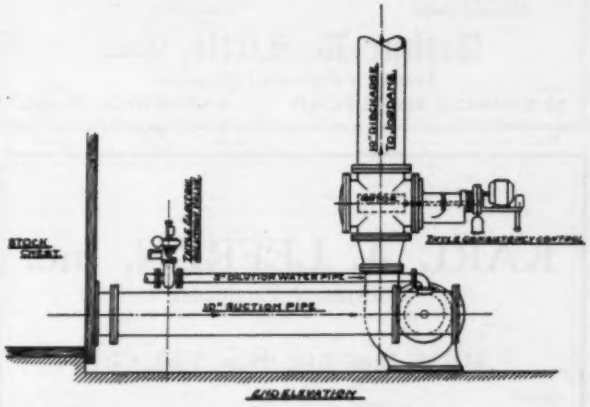
Charles Dodge, of the International Paper Co., formerly of the Forbes Lithograph Co., described methods used in that plant to maintain correct atmospheric moisture summer and winter by an elaborate system of air moistening and drying. This is done by blowing air through each sheet of paper as it is uncased and hung on conveyors to insure press room and paper having the same moisture content. Curling and slipsheeting are absolutely eliminated.

Albermarle Paper Manufacturing Co., with New England sales offices at 726 Chamber of Commerce Building has removed to Suite 442 in the same building with larger offices. Blair Stringfellow, New England sales agent, during his tenure of office has aided his company in securing adoption of the Albemarle blotting lines by four large New England merchant houses in Portland, Boston, Springfield, and Hartford.

Of keen interest to the fine paper trade generally is the announcement that the Brown Co., Portland, mills at Berlin, N. H., has placed "Alpha BCo Bond" watermarked on the market. It is the result of long research and experimentation by the Brown laboratories and is made of 100 per cent Superalpha fiber. It is offered to agents "with absolute confidence as to permanence and strength." It is said to be a paper that will sell for purposes where paper of the highest grade is required. Five New England merchants, two in Portland, one in Boston, Bridgeport, Worcester, Springfield, Hartford, Holyoke, and New Haven have adopted the line.

Brown Co., has introduced another new alpha fiber known as "No. 60." It is of pure cellulose fiber like the regular alpha but is distinctive in many respects having unusual flexibility, extremely high color and a unique texture. It is offered at 5 cents per pound and is going over in good shape following its initial introduction to the trade.

CONTROLLING UNBEATEN SULPHITE STOCK IN WELL KNOWN NEW YORK MILL



This THYLE CONSISTENCY CONTROL UNIT is controlling the consistency of a stock that heretofore could not be controlled. The stock is unbeaten, unbleached, raw sulphite and is maintained at an average consistency of 4%. Frequently unshredded stock 2 or 3 inches square is pumped out of the chest, and it is the handling of these large pieces of stock that has proven the superiority of the THYLE UNIT. The THYLE UNIT does not block or pack.

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Chillicothe Paper Reports Good Year

Despite the extended business depression of the past year, the Chillicothe Paper Co., Chillicothe, O., made an excellent showing, according to the report made by President Hector McVicker to the stockholders at the annual meeting held at the company's office recently. The net income for the year was $94,740.50 which was used to meet the regular dividends on the company's outstanding stock, depreciation requirements and left a comfortable balance which was placed in the surplus account. During the past year the company reduced its outstanding equipment notes by $40,000 and has also reduced current indebtedness.

Due to decreased demand the mill was placed on a five-day per week schedule for the greater part of the year. But starting recently a better run of orders has resulted in a full time schedule. Officials of the company expressed optimism over the prospects for 1931 and already business conditions are improving, it is said.

Alfred Bishton Botfield

Alfred Bishton Botfield, originator of high temperature cement and founder of that industry in the United States, died recently in Miami, Florida, at the age of 83. He was born September 20, 1847 at Shifnal, Shropshire, England, and received his education in the schools and universities of that country.

Mr. Botfield then came to this country, where he established the Botfield Furnace Specialties Company in Philadelphia, engaging in the building and repairing of stationary and marine boiler settings. He soon recognized the deficiencies of mortars then in vogue for laying up fire brick, which were employed only for the purpose of leveling up the courses to compensate for irregularities in brick dimensions. At the start of this century, he began his earliest experiments to develop a mortar which would function as a cement, to bond brick to brick in the same manner as one piece of iron was then being joined to another piece of iron by the process of welding which was a comparative innovation.

In 1915, Mr. Botfield retired from active business, and the conduct of the Botfield Furnace Specialties Company was assumed by his son, Leonard Bishton Botfield who is now president of the succeeding Philadelphia concern with the corporate title of Botfield Refractories Company.

During the first quarter of 1931, the American Engineering Co., Philadelphia, Pa., has installed Taylor Stokers in the following mills: Northwest Paper Co., Cloquet, Minn.; Bancroft & Sons, Rockford, Ill.; Hollingsworth & Whitney, Winslow, Me.; Michigan Paper Co., Plainwell, Mich.; Consolidated Paper Co., Monroe, Mich.

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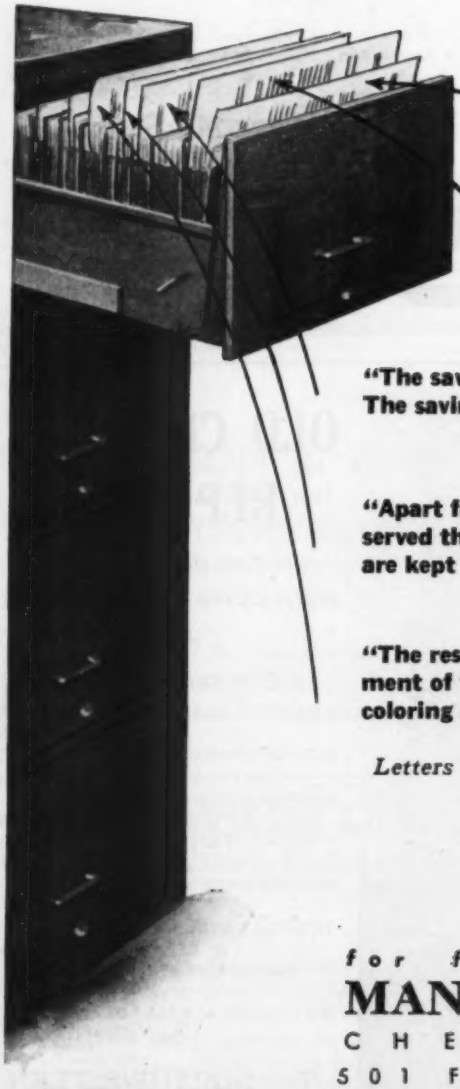

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"Apart from the saving effected in the cost of sizing we have observed that the wires have less incrustations, and that the felts are kept cleaner."

"The results obtained have been: more uniform sizing, improvement of the color of our papers, savings of rosin, of alum and of coloring material."

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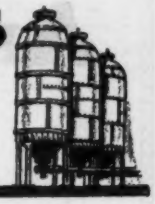
Technical Developments in the Paper Industry



Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Bleaching Pulp

THE physical-chemical principles of reactions as applied to practical processes are claimed to be of prime importance in the new physical-chemical technology. The pulp bleaching process is examined in this light. The author discussed "staged" bleaching. The diffusion principle in bleaching receives special attention and a process for carrying out bleaching according to this principle is described. The equipment that is necessary for this purpose consists of a dehydrating unit, which does not actually belong to the process, but which has for its purpose the conversion of the pulp

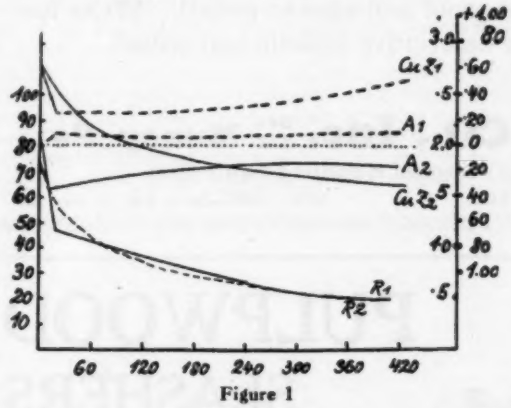


Figure 1

into a web. After dehydration, the pulp is given its first impregnation according to the diffusion principle in a suitable apparatus. The impregnation reduces the dry content of the pulp to 17 to 20 per cent and the pulp is then pressed so that the absolute dry content again reaches 33 to 36 per cent, which it had before the impregnation. Under these

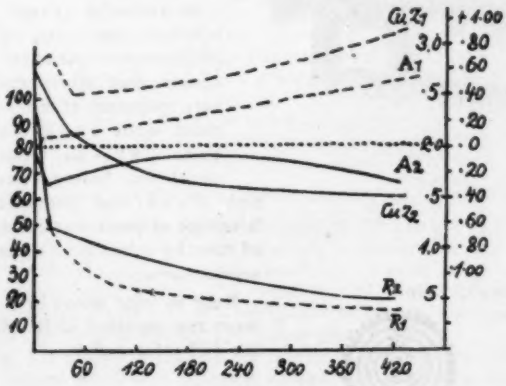


Figure 2

conditions, it is found that the pulp has already attained 50 per cent bleaching. Then a second impregnation takes place which reduces the dry content of the pulp to 22 to 25 per cent and necessitates pressing to bring it up again to 33 to 36 per cent. In certain cases, the final stage of the bleaching may be accelerated by the use of steaming, in which only very moderate temperatures must be used.

The results obtained with different types of pulp are reported both in tabular and chart form. Fig. 1, for example, gives the results of the bleaching experiments carried out on easy-bleaching sulphite pulps. The duration of reaction in minutes is used as the abscissa axis. The ordinates give the chlorine coefficient, the copper number and the acidity. It is indicated that in the usual bleaching process the acidity increases and the copper number moves in parallel to the acidity. In the catalytically stabilized process, the acidity remains on the other side of the line of neutrality, that is in the alkaline field, during the entire course of the process. As the bleaching proceeds, the copper number decreases which is quite novel.

The chlorine coefficient, which is designated as (R), shows that both processes run at the same speed. It is understandable that the stabilized bleaching process can be still further catalytically accelerated with increase of the temperature of the bleach bath. The curves in Fig. 2 show the mechanism of the process when sodium hypochlorite is used as the bleaching agent. The course of the bleaching is exactly the same as in the first case. Dr. H. Wenzl, Der Papierfabrikant, 1931, pages 49 to 55.

Rosin and Papermaking

THE grades and origin of rosin are discussed briefly. A few tests, which are very easy to carry out, may be used to determine the grade of the rosin. Thus a 20-gram sample is dissolved in a small quantity of alcohol. If there is an appreciable residue, it is collected on a tared filter paper, washed with alcohol to remove the rosin that is contained in it, then dried and weighed. The weight of the filter paper is subtracted from the weight obtained and the remainder is the weight of the residue.

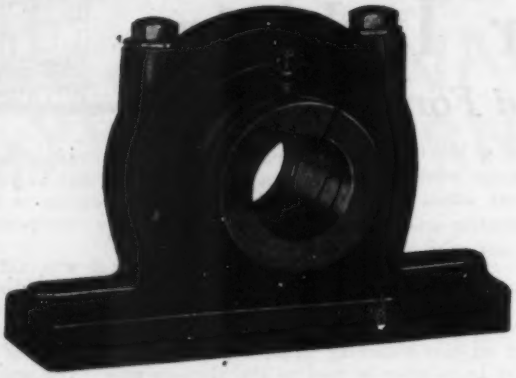
This residue can then be incinerated and from the ash is obtained the weight of mineral impurities in the rosin. It is also advisable to subtract the weight of the ash of the filter paper itself, which is generally known beforehand.

Rosin is formed principally of organic acids, which give salts with alkalies. In making this test, ten grams of the rosin are placed in a flask and five grams of caustic soda dissolved in a little distilled water are added. Then 50 cubic centimeters of alcohol are added. The mixture is thereafter heated on a water bath to the boiling point. The alcohol is removed by distillation, and the soap residue is dissolved in 50 cc. of hot water. The unsaponifiable matters are soluble in ether. Fifty cc. of this solvent are accordingly added and allowed to remain in contact with the soap residue for a sufficiently long period of time, usually overnight.

The solution is then placed in a separatory funnel and the lower aqueous layer is easily removed. The ether solution that remains is washed with water, about ten to 20 cc. After the water has been removed, the ether solution is transferred to a weighed flask and the ether is distilled off.

The residue, which consists of the unsaponifiable matters, is heated in an air bath to a temperature of 100 to 110 degrees C. until its weight remains constant. Inasmuch as the sample taken weighs exactly ten grams, the weight multiplied by ten gives the percentage. C. Groud, Le Papier, volume 33, 1267-271.

ANNOUNCING — — — —



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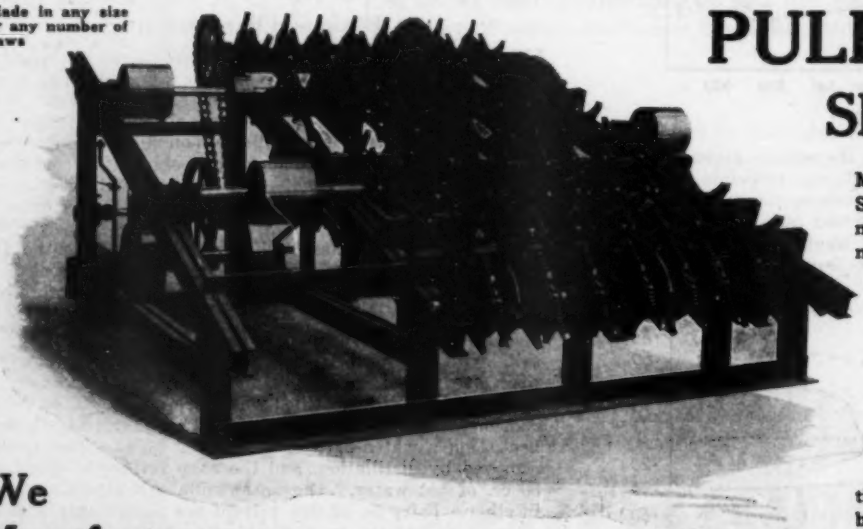

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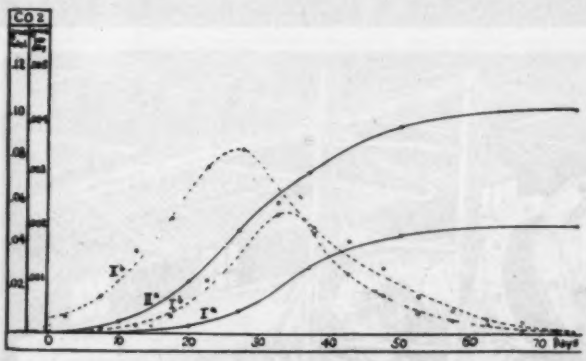
Formation of Mold on Sulphite Pulp

THIS problem was investigated in detail. The conclusions that were reached are as follows: Decomposition of sulphite pulp by molds and also by molds of the type that are found in practice, takes place quite extensively, without special conditions being required for this phenomenon. The loss in practice appears to be low, for the reason that the mold does not have the ability to spread without other nutrient and cannot live at all in dry pulps, as most always occurs. The protection against the formation of molds in wet pulps lies in keeping the mill as clean as possible and taking care to avoid impurities getting into the pulp during storage and transportation. If infection of the pulp with fungi does take place, then the destructive action of the latter is intense but limited locally, and under normal conditions this destroying influence does not spread.

The fibers that are attacked in this manner suffer extraordinarily in loss of strength, for they are attacked and degraded to an amorphous state. These facts can be very easily substantiated by examination of the fibers under the microscope. The author has worked out a useful method for following through the entire course of the decomposition process with the aid of the microscope. Bleached pulp and unbleached pulp behave differently. The reason for this must be sought in the pulps themselves.

The substances that are obtained through the decomposition of the pulps, consist of gases and particularly humin substances, to which is ascribed an important effect on the course of the decomposition. These substances are apparently formed from the residual lignin present.

Another important conclusion drawn from these experiments is that the molds do not possess the power of growing anaerobically, that they are extremely sensitive to abnormal temperatures and that only the spores are very resistant. A bibliography is included. Figure 1 shows the progress of the decomposition of the pulp, which is a bleached pulp in



this case, as measured by the formation of carbon dioxide. The four curves refer to two different fungi, as follows: (Ia) with penicillium La Coir total grams of carbon dioxide; (Ib) with penicillium La Coir, grams of carbon dioxide per day; (IIa) green penicillium, total grams of carbon dioxide; (IIb) green penicillium, grams of carbon dioxide per day. Dr. W. Dreschel, Der Papierfabrikant, 1931, pages 5-9.

Regulation of Steam Power Drive of Grinders

THIS invention has for its purpose the avoidance of blowing-off excess steam due to sharp variations in the load on the grinders and to obtain thereby as regular as possible load on the boiler plant. The regulation of the steam engine drive of the grinder or the regulation of the grinding operation itself is effected by the boiler pressure.

Fig. (1) shows a method of carrying out this regulation. The battery of boilers is shown at (a), and the steam engine at (b) for direct or indirect drive of the grinder (c). There is an additional steam engine shown at (d) with a power consuming device (e). The steam engine (d) takes a variable amount of steam from the boilers (a), which corresponds to the variable steam consumption. The steam engine (b) likewise consumes a variable amount of steam and this is done in such a way that the load on the boilers remains as constant as possible.

Fig. (2) shows an enlarged view of the regulating apparatus, as applied to the grinder (c). It shows the relation between the pressure of the presses and that of the boiler. The stone is shown at (f) and the two pockets of the grinder

Fig.1.

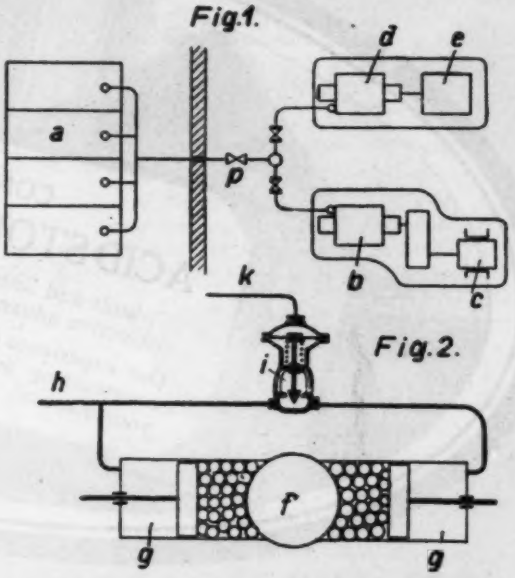


Fig.2.

at (g,g). Increased pressure in (g) causes a greater consumption of steam. A pressure regulator (i) is built into the steam line leading to the grinder, and the pressure in the boilers acts upon the membrane of this valve through the connecting pipe (k), so that an increase of the boiler pressure causes an increase in the pressure in the pockets or presses of the grinder and therewith greater consumption of power takes place.

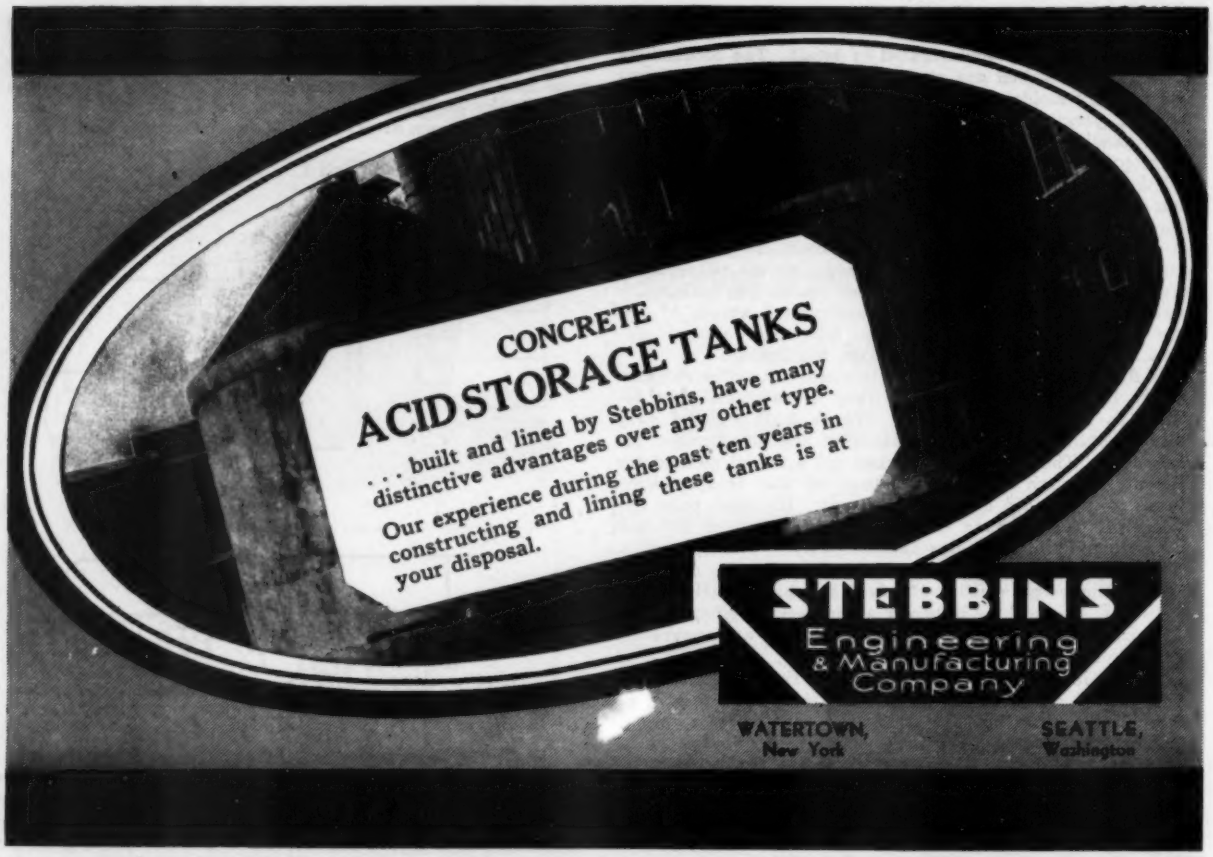
The regulation of the firing of the boilers takes place simultaneously in accordance with the load on the boilers or the grinders. A. G. Brown, Boveri & Cie., Baden, Switzerland. German Patent No. 506,344.

Action of Neutral Salts and Dilute Acids on Sulphite Pulp

ALTERNATE treatment of sulphite pulp with normal solution of sodium chloride and tenth normal solution of hydrochloric acid (with intermediate washing with water) reveals absorption and liberation of acid by the pulp, phenomena which are related to the quality of the pulp. The quantity of acid that is liberated is almost proportional to the corresponding sulphur content of the pulp. The ease with which sulphite pulp, which has been treated with hydrochloric acid, produces acid with sodium chloride, depends consequently on the content of lignosulphonic acid in the pulp. The process that takes place may be represented as follows:

$$\underset{\text{solid phase}}{RSO_3H} + Na + Cl = \underset{\text{solid phase}}{RSO_3Na} + H + Cl$$

Even repeated treatment of the pulp with sodium chloride and hydrochloric acid does not lead to any loss of sulphur. The first treatment with sodium chloride in any series of sodium chloride-hydrochloric acid treatments gives only a very small quantity of acid. This is due to the fact that the largest part of the lignosulphonic acids is combined with lime. The result of the treatment is accordingly a substitution of sodium for calcium. The quantity of acid absorbed is considerably less than the quantity of acid that is liberated by the treatment with sodium chloride. Direct treatment of the pulp with acid results in an exchange of hydrogen ions for the calcium ions. The action of a normal solution of sodium chloride is compared with that of a tenth normal solution of hydrochloric acid and it is shown that the former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is greater than the latter with respect to the calcium ion. The interchange of ions causes great differences in the ash content of the cellulose.

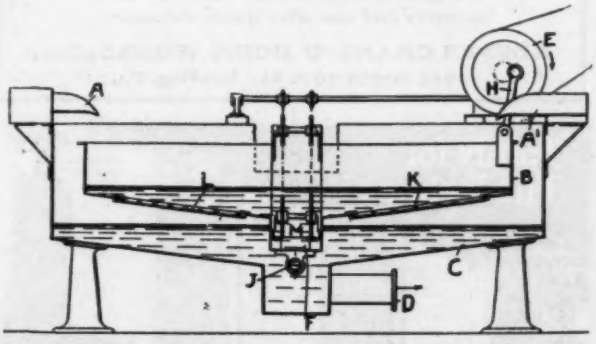
Tests were also carried out to determine the stability of pulp that had been alternately treated with sodium chloride and hydrochloric acid, while the pulp is being dried. Great variations were found and it was also determined that the last treatment carried out was always the determinative one. These observations agree well with the ones made on the interchange of ions. The fixed lignosulphonic acid is unstable. After its hydrogen ion has been replaced by sodium ion, the substance is able to withstand the action of the drying temperature, without there being any visible changes, while the pulp, heated without this preliminary treatment, assumed a grayish to black color and the strength of the fibers were impaired.

These experiments revealed certain important conclusions regarding sulphite digestion and the causes of black cooking, inasmuch as these depend on the decomposition of the fixed lignosulphonic acids. The quality of the pulp suffers, when the hydrogen ions of the lignosulphonic acids are not exchanged with the calcium ions at the high digestion temperatures. The extent to which this interchange takes place depends however not only on the content of hydrogen ions in the digestion liquor—the acidity does not itself cause the aforementioned black cooking—but also on the relation between the concentration of the calcium and hydrogen ions. These calcium ions can be derived from any dissociated calcium compound, for example, from calcium chloride. Calcium bisulphite, on the other hand, can also reduce the hydrogen ion content at the same time, and hence it has a stronger action than calcium chloride.

The results of certain digestion experiments carried out by the author on pulpwood have substantiated the aforementioned interchange of ions. Thus the addition of sodium sulphate to the digestion liquor has the effect of causing the interchange of a large part of the hydrogen ions in the combined lignosulphonic acids with the sodium ions, although the solution reacts quite acid, and the result is that a more stable pulp is formed. The surprising thing is that the protective action of sodium chloride is not the same as that of sodium sulphate, although an increase of the sodium chloride content causes a decided favorable action, which however does not reach the potency of that of the sulphate. C. Kullgren, Svensk Kem. Tidskr., vol. 42, pages 179ff.

Knot Catcher for Paper Stock

THE knot catcher is shown in cross-section view in the accompanying illustration. The outer casing or shell (C), which holds the processed stock, has a second container (B). This container can be moved like a pendulum about an axis (J), dipping towards the bottom of the box (C) and moving away from it. The bottom of this container is provided with

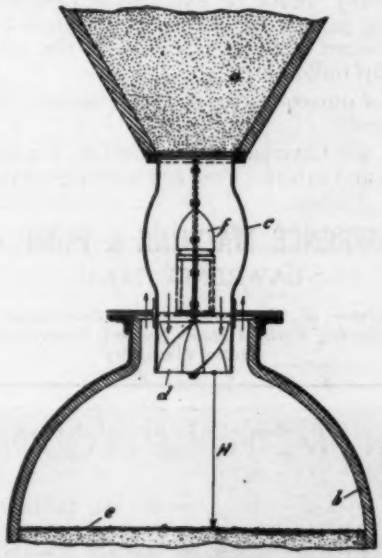


holes. The container (B) is set into motion by means of the driving mechanism (E) and the connecting rod (H) or any other suitable drive. The dirty stock enters the machine through the inlets (A) and (A^1). This stock is in dilute form as it comes into the screening device. The stock then passes through the screening surface (K) and the knots and other impurities are caught on this surface and removed from the stock. These impurities gradually move down the inclined surfaces (K) and are finally collected in the run-off portion (M), from which they are continuously removed by means of the device (F).

The motion of the screening surface back and forth from the bottom of the casing or box (C) results in the stock being uniformly screened and in a more rapid movement of the stock through the screen. At the same time the holes in the bottom of the container (B) are continuously kept free of any deposits of impurities, which might otherwise impede the even flow of stock through them. The refined stock thus flows out in a fine stream through these openings into the container (C). This device can be advantageously employed in screening the finest stock as well as stock of poorer quality. L. Keferstein, Weddersleben, Germany. German Patent No. 505,590.

Filling Digesters

THE illustration shows a device for filling digesters. Additional acceleration of the flow of the stock into the digester is secured by the use of a current of gas or steam.



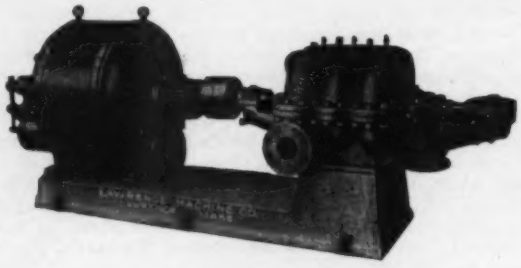
The centrifugal action of the device is such that the digester becomes entirely full in a uniform and positive manner. The stock is kept in the hopper (a) and finally reaches the digester (b), passing through the connecting piece (c). The mechanical device which gives a centrifugal direction to the stock can be seen at (d) and the driving mechanism for the same at (f). The latter is an electric motor. Zellstoffabrik Waldhof, Mannheim-Waldhof, Germany. German Patent No. 502,662.

Absorption of Iron by Pulp

THE use of the Molisch iron test, which gives Berlin blue or Turnbull blue, is questioned when applied to pulp. The author used the test on various types of pulp. Thus he tested in this manner old paper, steamed mechanical wood, soda cellulose and bleached linen halfstuff and found that they all gave a slight iron reaction. On the other hand, unbleached pinewood pulp, bleached aspenwood pulp and bleached straw pulp did not give the reaction. The author believes that the unharmed wood fibers give the iron reaction, while those that have been injured in the beating process do not give the iron reaction. The ash obtained from the different raw materials and also from old paper contain organically combined iron and hence give very definite iron reaction. Czapala, Faserforschung, 1931, page 55.

Wire and Suction Boxes in the Papermaking Machine

THE author discusses the importance of the suction box in the papermaking machine and describes the experience that he has had in this particular field. Inasmuch as the friction between the wire and the suction box increases



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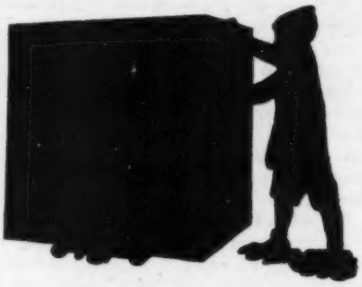

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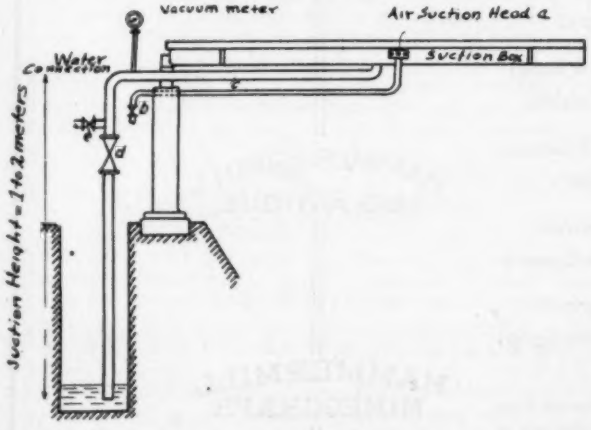
proportionally with the vacuum used, the friction at a low total vacuum, the wear and tear on the wire caused thereby and also the corresponding wear and tear on the suction box are less.

The author points out that the proper amount of understanding must be used in operating the correctly designed suction box installation in order to obtain good results at all times.

He points out that the assumption that the paper web is not sufficiently dehydrated with low suction pressure is not correct, for the dry content rises within the suction installation from 1.5 to 14 to 15 per cent. This must be considered the most that can be obtained by suction. It is also emphasized that, in order that the suction installation should work well, it is essential that the last suction box in the series should be connected with a pump that has sufficient capacity for the work required.

The sketch shows a suction box with separate air and water outlets. A special air suction head (a) is built into the suction box and this suction head is connected with the air line leading to the air pump. The desired vacuum can be adjusted by means of the valve (b). The water that is sucked out of the paper web through the pipe (c), and the quantity of this water can be regulated by the valve (d). The suction box can be operated in the manner of an injector with water pressure by means of the valve (e), when it happens that the air pump gets out of order.

The desired maximum vacuum can be regulated by change of the water level in the suction pit. If the difference in the level between the upper edge of the suction box and that of the water amounts to for example one meter, then the vacuum



in the suction box cannot be any greater than one meter. When the vacuum increases, then the water passes from the pit into the suction box and the suction is impaired.

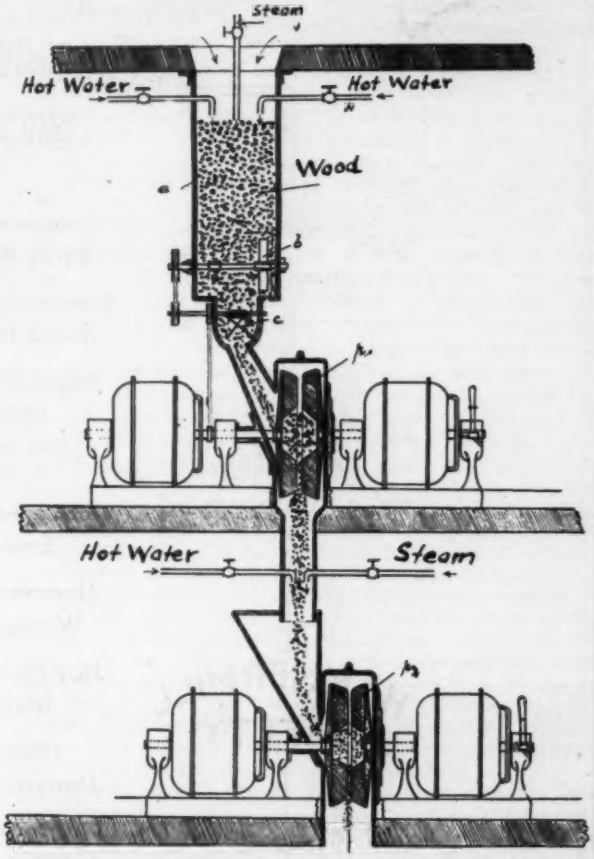
Therein lies the great advantage of separate suction, namely that the vacuum is automatically regulated. This is not true when water and air are both sucked through the pump in the usual manner. J. Heess, Zellstoff und Papier, 1931, pages 85 to 88.

Working up Waste Wood

THIS article is concerned with a new method of working up waste wood into mechanical wood pulp. The apparatus that is used is shown in the accompanying illustration. The wood is treated in suitable manner to produce a stock which resembles mechanical pulp. The process is divided up into three principal operations. The first stage consists of the comminution of the raw material containing the normal amount of water, the subsequent screening of the comminuted material and moistening with water in case the wood had dried out too much in storage.

Dry refining before wet refining has for its purpose the disintegration of the wood into smaller fiber bundles that are as uniform in size as possible. The moisture which naturally adheres to the wood, also that which is deliberately added thereto, has for its purpose the formation of steam due to the heat of friction that results from the contact of the grinding surfaces in the refining engines. The steam, thus generated, causes a disintegration of the wood into bundles of fibers and individual fibers as well.

The comminuted wood, in the form of chips, is then subjected to thorough softening and loosening action in the container (a) (see figure). The binders or adhesive substances



in the wood are thus removed. The result is that the wood chips pack together very densely, so that an agitating device (b) is required in the lower part of the container. This loosens up the material. The latter then falls down by its own weight into the distributing device (c) which is provided with worm and gear drive and thus the flow of chips into the first refining engine (r_1) is regulated. There is a certain amount of heat developed during the refining operation and this helps in the disintegration of the wood.

The process is continued in the second refining engine (r_2), after the stock, refined in (r_1) is subjected to treatment with steam and hot water. The process may be concluded in a third refining engine or continued until the stock has attained the proper degree of fineness. The final operation in the process is the screening of the refined stock. Der Papier Fabrikant, 1931, pages 83 to 86.

Improvement in Dry End of Paper Machine

THE improvement that has been made in the dry end of the papermaking machine consists essentially in that the hot air pipes are constantly rotated during the drying process and the air openings in the pipes are arranged across the width of the pipe. These openings are made in the form of slots. The result is that the air emerges from the pipes in a spiral stream with a constantly changing direction of flow. The flow of hot air, therefore, reaches every part of the space between the paper web and the felt. E. von Austen, Eupen, Belgium. German Patent No. 496,866.

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THERE appears scant doubt, and reports in a majority of instances confirm, that business in paper is expanding. The improvement in the market is slow, to describe the situation reservedly, yet a better feeling seems to be existing and paper manufacturers and merchants in various parts of the country express greater confidence concerning the future.

Paper consumers are very cautious in their attitude, and in their operations in the market. There is a distinct aversion to absorbing other than supplies actually and directly required; there is, of course, some contracting ahead by those large users or converters who make a practice of entering into contracts with paper producers or distributors, but forward orders are confined chiefly to this class of buyers. The rank and file of paper consumers, such as printers, bookbinders, retailing establishments, etc., etc., are sailing very close to the wind in their acquisition of supplies; they are purchasing freely enough when definitely in need of paper, but are little disposed to augment their stocks or to make commitments involving future shipments. In short, the same condition prevailing in nearly all commodity markets at present, and which has been in vogue for quite sometime, exists also in the paper market—the unwillingness and common refusal of consumers to look ahead and buy accordingly.

Nevertheless most reports say that the movement of paper from mills into trade and consuming channels is registering a little increase. This doubtless means that general business activity is on the mend; that the need of paper is expanding, and that the market is gradually though slowly attaining a wider compass. Manufacturers and merchants are not pressing sales; this does not mean that they are not seeking in every possible quarter for orders, nor that there isn't keen competition for such business as is obtainable, but it is evident sellers of paper have come to a full realization that it is next to impossible to induce customers to absorb supplies at present unless they have absolute need of paper.

Moreover, one of the salient features of the situation which has developed since the outset of the new year is that manufacturers are keeping their production of paper down; that is, somewhere within the scope of the prevailing market demand. Reports in general tell of this or that individual mill, or this or that group of mills, operating at but three or four days a week, and it is no secret that some are working no more than a couple of days weekly. In short, papermakers have stopped endeavoring to "force" their market, having found that such tactics avail them nothing on the favorable side and result in naught else than a piling up of stocks at mills. A concerted effort seems to be now being made to reduce surplus holdings of paper of all kinds, and to keep production on a parity with or below the current demand emanating from consuming centers.

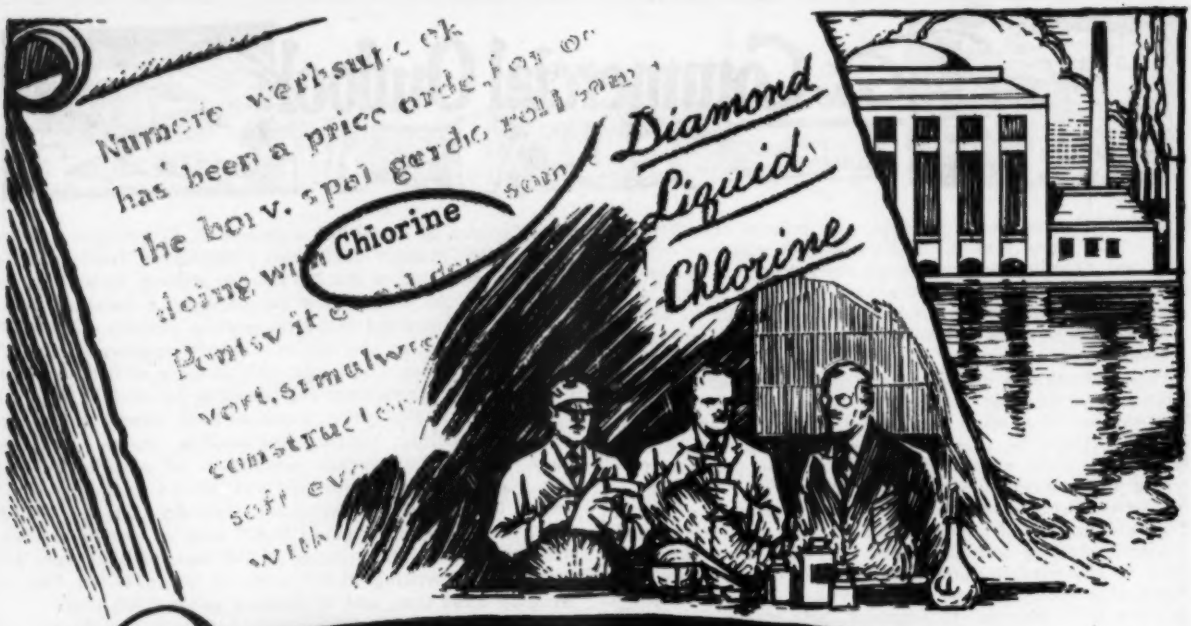
This policy on the part of paper manufacturers is naturally aiding the price situation. A steadier, if not firmer, undertone prevails in market rates. Mills and distributors are less disposed to grant concessions to accomplish sales; buyers have come to understand this and are no longer pressing to get the supplies desired at cheaper prices, and more stabilization is noted in prices than in a long while. On the other hand, it is still very much of a buyer's market, and buyers are in some cases succeeding in getting orders accepted at price recessions. Yet the condition as concerns prices certainly is improving.

According to identical mill reports to the American Paper and Pulp Association from members and cooperating organizations, the total production of paper in the United States during January, 1931, reached 455,691 net tons, registering a net daily average increase of three per cent over production in the preceding month but a decline of 21 per cent as compared with January last year. Shipments from mills in January amounted to 449,748 tons, or slightly under the production for the month, and representing a decrease of 18 per cent as contrasted with shipments in January, 1930. Mill stocks of paper at the end of January aggregated 294,228 tons of all grades. Compared with January of last year, the daily average production registered a decrease in the following grades: Newsprint, uncoated book, paperboard, wrapping, bag, writing, hanging and building papers. The January, 1931, daily average production of paperboard, bag, tissue and hanging papers also was lower than in December, 1930. Produltion of newsprint in January last was 105,527 tons, of uncoated book paper 71,827 tons, of paperboard 153,989 tons, of wrapping paper 46,358 tons, of bag paper 10,658 tons, of writing 25,933 tons, of tissue 14,730 tons, of hanging 4,294 tons, and of building paper 3,595 tons.

Production of newsprint paper in the United States and Canada during the month of February, 1931, amounted to 253,340 tons, or at 58½ per cent of the mills' rated capacity, as compared with a total of 289,866 tons produced in the preceding month or at the rate of 61⅞ per cent of capacity, according to the News Print Service Bureau. Production in February last year totaled 301,548 tons for both countries, or at 74½ per cent of mills' capacity. Canadian production in February was 164,552 tons, or at 55⅛ per cent of capacity, against 184,339 tons or 57⅞ per cent in January this year, and 189,154 tons or 69 per cent of capacity in February, 1930. Production in the United States in February was 88,788 tons, or 65⅛ per cent of capacity, contrasted with 105,527 tons or 69⅛ per cent in the preceding month, and 112,394 tons or 86⅛ per cent in February a year ago.

Mills in the United States produced a total of 209,369 tons of paperboard in January last, comparing with 176,483 tons in the preceding month, and 236,344 tons in January, 1930, according to the monthly statistical summary of the board industry compiled by the U. S. Department of Commerce. Production in January was 63.1 per cent of mills' capacity, against 53.2 per cent the month before and 71.7 per cent in January last year. New orders for board received by mills during January called for 209,953 tons, contrasted with 173,258 tons in the preceding month, while unfilled orders held by manufacturers at the end of January were for 55,726 tons, against 53,622 tons a month previously. Shipments of board from mills in January aggregated 207,849 tons, compared with 175,170 tons in December, and stocks of board at mills at the close of January totaled 73,971 tons, contrasted with 72,451 tons a month before.

Newsprint supplies are moving into consuming channels in a steady way but consumption is below normal and publishers are seldom finding it necessary to resort to any open-market purchases to augment their supplies. Wrapping paper demand is fair, and prices are showing steadiness of tone. Printers and other buyers are absorbing fine papers rather freely, though chiefly in small lots. Quoted rates on bonds and ledgers are maintained but it is reported some lines of sulphite bonds are available at slight reductions in price. Book papers are in routine call, and at least holding their quotable position. Tissue is moderately active although pre-Easter business has not approximated normal volume. Boxboards are now steady in price on last reported levels following a little dip when certain manufacturers lowered their quotations to stimulate buying. Plain chip board is quoted at $30 a ton in the East, delivered New York, and news board at $32.50, though purchases of chip were made recently down to $26 delivered, according to reports.



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Papermaking Rags

Paper manufacturers are engaging in very little buying of rag stock. There is, of course, a certain amount of routine activity in the market, but demand at best is along decidedly restricted lines and the purchasing by paper mills is having scant influence of a supporting character on market values. As regards prices, everything is in favor of those on the buying side. It is probably true that available supplies of some kinds of papermaking rags are small; that incoming amounts from production or collection sources do not begin to measure up to normal, and that dealers having the scarce grades of rags in stock are holding for asked prices, but at the same time the market undertone continues easy under demand from consuming quarters as slow as it is.

Papermakers in a large majority of instances claim to have ample supplies of rags on hand, more especially under present curtailed operations of mills. There is a readiness exhibited to purchase such rags as current requirements call for, but few—and it might even be said, none—paper manufacturers are buying rags in anticipation of forward needs. It is appreciated that should business expand and paper mills find it necessary to increase their operations and therefore find themselves in need of larger supplies of rags, the likelihood is they would be obliged to meet advanced prices to obtain the material required, but it is evident that papermakers are permitting this phase of the matter to take care of itself while expressing willingness to grant higher prices should the occasion warrant. Meanwhile, dealers and importers have seemingly grown tired of exerting selling pressure on the market, and are pursuing something of a waiting policy in the hope and expectation that demand from consumers will increase sooner or later, and in despair of trying to induce mill customers to buy when not in want of rags.

Prices of new cuttings have moved to new low levels, which represent the cheapest values of such rags known in some years. As a matter of fact, it is questionable at just how low buyers are operating in the market. Dealers are at a loss to say what can be secured for many grades of cuttings, and, lacking established market levels, are puzzled what to quote buyers when in receipt of inquiries for such rags. New No. 1 white shirt cuttings are reported available to paper mills at 7.25 cents a pound f.o.b. shipping points, and possibly at lower figures. Fancy shirt cuttings are quoted at 3.25 cents, unbleached muslins at 7.50 cents, light silesias at 5.50 cents, blue overall cuttings at 5.50 cents, No. 1 washables at 3.25 cents, and black silesias at 3.25 cents, and it is no secret that buyers are in some cases getting the supplies desired at concessions from these figures.

Similarly, prices of old cottons are in an easy position though adhering to quotable levels. In such rags, too, prices are being discounted by some sellers, so that buyers seldom bid more than the low edge of quotational ranges and mostly succeed in acquiring the supplies sought at the rates bid. Old No. 1 repacked white rags are around 4.75 cents a pound at dealers' shipping points, No. 2 repacked whites 2 to 2.50 cents, and repacked thirds and blues 1.50 to 1.75 cents per pound. Roofing rags are reported in moderate demand but mills are filling their wants at previous prices and in certain instances have accomplished purchases at slight reductions. No. 7 domestic roofing stock is about 90 cents per hundred pounds at points of shipment, and No. 2 packing 65 to 75 cents a hundred.

Foreign rags of practically all description are in very slow demand, and prices are mainly nominal and in favor of buyers. Some scattered buying of dark colored cottons has been recorded on a price basis of about 80 cents per hundred pounds ex dock American Atlantic ports, with so-called "distress" sales reported down to 75 cents a hundred.

Average quotations f.o.b. shipping points and ex dock New York, some of which should be considered as nominal, are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	7.00– 7.50
White shirt cuttings, No. 2	4.50– 5.00
Fancy shirt cuttings	3.25– 3.50
Washables, No. 1	3.25– 3.50
Unbleached muslins	7.25– 7.50
White lawns	6.00– 6.25
Overall cuttings, blue	5.25– 5.50
Black silesias	3.25– 3.50
Canton flannels, bleached	6.25– 6.50
Canton flannels, unbleached	5.25– 5.50
Shoe cuttings, bleached	5.50– 5.75
Shoe cuttings, unbleached	4.50– 4.75
Light silesias	5.25– 5.50
O. D. khaki cuttings	4.50– 4.75
Mixed khaki cuttings	3.75– 4.00
Corduroy cuttings	3.00– 3.25
Cottonade cuttings	2.75– 3.00
Linens, No. 1 white, foreign	10.00–10.50
Light prints, foreign	2.75– 3.00
Old Stock—	
Whites, No. 1, repacked	4.25– 5.00
Whites, No. 2, repacked	2.00– 2.50
Whites, house soiled	2.00– 2.25
Whites, street soiled	1.75– 2.00
Thirds and blues, rough	1.00– 1.25
Thirds and blues, repacked	1.50– 1.75
Lace curtains	4.00– 4.25
Black stockings	3.50– 3.75
Cotton canvas, No. 1	3.75– 4.00
White cotton batting	1.25– 1.50
Roofing No. 1 (cloth strippings)	.85– .95
Roofing, No. 2	.65– .75
Linsey garments, foreign	.95– 1.00
Dark colored cottons, foreign	.80– .85
Blue linens, foreign	2.75– 3.00
Gray linens, foreign	3.00– 3.25
White linens, foreign	5.00– 5.50
Light prints, extra foreign	1.75– 2.00

Rope and Bagging

Paper mills using old rope are said to be fully stocked on this raw material, and are manifesting almost no desire to acquire additional supplies. The market is in the doldrums, and of such extremely narrow dimensions that dealers themselves have in numerous cases discontinued purchases in supply sources while unable to find an outlet for the stocks on hand. Prices are a secondary consideration in the negotiation of transactions, and the market is in a more or less nominal position. Domestic No. 1 old manila rope is reported available to mills at 2.50 cents a pound and probably at less f.o.b. dealers' shipping points, while foreign old rope is reported offered at this same price and lower.

Old bagging also is in quiet call though some spotty activity has been noted in roofing grade of scrap burlap, with mills reported to have paid around 70 cents per hundred pounds at shipping points. No. 1 scrap bagging is said to be freely available at 1.50 cents a pound at dealers' points, and perhaps at cheaper figures, while No. 1 old gunny bagging is quoted at 1.65 cents per pound. F.o.b. shipping point and ex dock New York quotations follow:

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Gunny, No. 1 domestic	1.60– 1.70
Gunny, No. 1 foreign	1.60– 1.65
Scrap bagging, No. 1	1.40– 1.50
Roofing bagging	.60– .70
Wool tares, heavy	1.65– 1.75
Wool tares, light	1.55– 1.65
Manila rope, No. 1 foreign	2.25– 2.50
Manila rope, No. 1 domestic	2.40– 2.60
Sisal strings	1.50– 1.75
Mixed strings	.70– .80

Old Paper

Market prices of old paper appear to be holding fairly stationary, but this seems due more to the fact that values already are so low there is scarcely room for further recession than to any worthwhile demand for consuming quarters to sustain the market. In short, buyers have things much their own way as regards prices, and are experiencing little difficulty covering their wants through purchases at the prices recognized as representing existing market levels, which in numerous cases are so low there is no chance of dealers and packers realizing a profit in handling paper stock. Instead, some grades of waste paper are selling at prices which mean packers are suffering severe losses in their present operations.

Book stock has moved relatively well and on a price basis of about 75 cents per hundred pounds f.o.b. shipping points in the East, with slightly higher levels prevailing in the Middle West. Prices of white shavings have eased a little, whereas old kraft paper has stiffened slightly to around 1.10 cents a pound at dealers' points. Folded newspapers are selling in the East at 30 cents per hundred pounds, and No. 1 mixed paper at 15 to 20 cents, but above these prices are being paid in the western market.

The following quotations f.o.b. shipping points are largely nominal:

	New York and Chicago
Hard white shavings, No. 1	2.40– 2.90
Hard white shavings, No. 2	2.25– 2.50
Soft white shavings	2.10– 2.50
Colored shavings	.50– .60
Heavy book, No. 1	.75– .90
Crumpled book, No. 1	.60– .65
Ledger stock	.65– 1.00
Kraft No. 1	1.05– 1.20
New kraft cuttings	1.50– 1.75
White blank news	1.60– 1.75
Manilas, No. 1	.40– .60
Manilas, container	.20– .30
Folded news	.30– .50
Sulphite mill wrappings	.50– .60
Old corrugated boxes	.40– .45
New corrugated box cuttings	.50– .55
Mixed paper, No. 1	.15– .30
Common paper	(Nominal)

Pulpwood

Only a routine demand is reported for pulpwood in the current market, and no changes of consequence have occurred in quoted rates. Consumers are rather hesitant buyers while waiting more definite indications of what their forward requirements are likely to amount to.

Exports of pulpwood from Canada to the United States in the first two months of 1931, amounting to 152,713 cords, valued at $1,363,172, showed a sharp decrease as compared with 258,336 cords of a value of $2,400,358 exported in the similar time last year.

Mechanical Pulp

Of all the raw materials consumed in the manufacture of paper, groundwood pulp seems to be characterized by a steadier price condition and to be moving into consuming channels in a more consistent manner. There is no unusual demand for mechanical pulp. On the contrary, buyers are very reserved and are limiting their activities in the market to the acquisition of actually needed supplies, yet the movement of pulp is steady and prices are holding their own. One reason for the price maintenance is that available sup-

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Our FOX HEAD brand for top-sizing is more economical than all glue-size.

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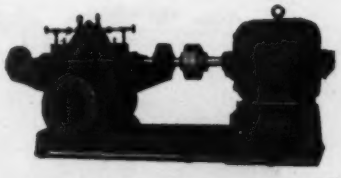

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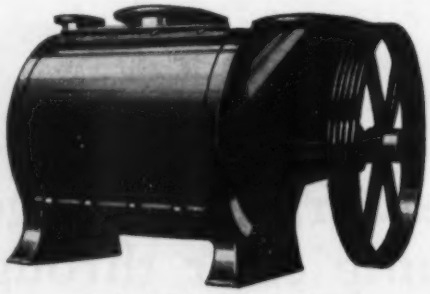

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In sizes 6" to 24" in diameter and lengths to 40 feet.

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Welded Vessels of Alloy Steel

Biggs Globe, Cylinder and Tumbling Digesters Welded or Riveted

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AKRON, OHIO

BIGGS ROTARIES *for years of dependable cooking and bleaching...*

plies are fairly well equalized to existing demand, with the result there is not a great deal of selling pressure exerted.

Canadian producers are reported accepting from $25 upwards per ton for groundwood f.o.b. grinding plants, depending on the freight to consuming centers and the air dry test, and domestic groundwood is around a price level of $27 a ton at pulp mills. Buyers are said to be meeting these prices fairly readily although they constitute rather high levels in comparison with quotations on some classes of chemical wood pulp.

Mills in the United States produced a total of 70,254 tons of groundwood during January, and shipped out 2,287 tons and consumed 68,343 tons, leaving stocks on hand at the end of that month of 47,770 tons, according to identical mill reports to the American Paper and Pulp Association.

Chemical Pulp

Most of the activity in the chemical wood pulp market has to do with shipments by producers against contracts and old orders. Current demand is comparatively quiet, although there are some consumers who are making their appearance in the market off and on to acquire limited tonnage of pulp. It is apparent that consumers in general are awaiting an expansion of their requirements before engaging in freer purchases of pulp, and manufacturers acknowledge it is difficult to effect sales, although on the other hand it is stated that the aggregate movement of supplies toward consuming mills is not so small. Prices are at least holding their own while hinging to a considerable degree on the quotations named on foreign pulps.

Bleached sulphite of prime domestic grade is reported offered at 2.65 cents upwards at producing points, with Pacific Coast sulphite quoted at this price basis ex dock U. S. Atlantic seaboard. Unbleached sulphite is about 2.25 cents to slightly higher for news grade, and around 2.50 cents for book qualities. Bleached soda pulp is quoted between 3 and 3.25 cents delivered paper mills, and domestic kraft pulp on a broad range of 1.80 to 2.75 cents at pulp mills.

Production of chemical pulp in the United States in January amounted to 108,450 net tons, against 102,148 tons in the preceding month, while stocks on hand at pulp mills at the end of January were 24,929 tons, according to American Paper and Pulp Association identical mill reports.

Quotations f.o.b. pulp mills are as follows:

Bleached sulphite	2.65– 4.75
Easy bleaching sulphite	2.50– 2.75
Unbleached sulphite, No. 1 strong (news grade)	2.25– 2.50
Unbleached sulphite, No. 1 book	2.40– 2.65
Soda pulp bleached (delivered)	3.00– 3.25
Mitscherlich, unbleached	2.75– 3.00
Kraft, No. 1	1.80– 2.75
Screenings, refined	(Nominal)

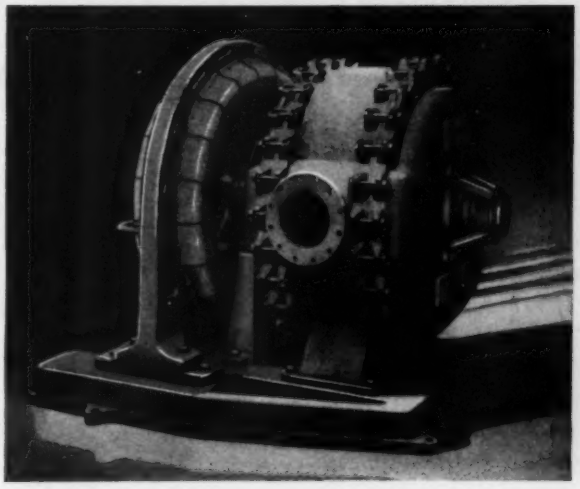
Chemicals

Papermaking chemicals are reported moving fairly steadily against contracts, with current market activity showing signs of improvement. Prices have scored but slight changes while displaying fair stabilization and being quotably maintained by producers. Casein prices are still about 8.50 cents per pound for domestic standard ground, and 11.50 cents for finely ground. Papermakers' starch has receded to a basis of 2.67 cents a pound for bagged lots f.o.b. factories.

Average quotations are as follows:

Alum, lump ammonia	3.50 – 3.75
Alum, lump starch	3.75 – 4.00
Blanc fixe, powdered	3.75 – 4.00
Bleaching powder	2.00 – 2.35
Brimstone (long ton, at mine)	18.00 –20.00
Casein (duty paid)	8.50 –12.00
Caustic soda, solid, spot delivery	2.50 – 2.55
China clay, domestic washed	8.00 –12.00
China clay, foreign	13.00 –21.00
Rosin, Grade E	5.90 –
Satin white	2.00 – 2.25
Soda ash, 58 per cent light (bags)	1.15½– 1.25
Starch, papermakers', in bags	2.67 –
Talc (ton)	16.00 –18.00

13 HYTORS AT THREE RIVERS



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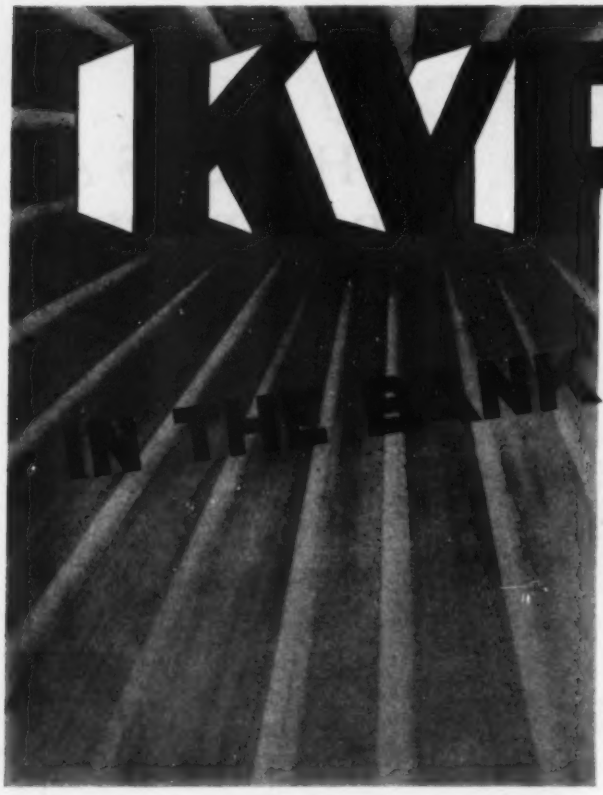

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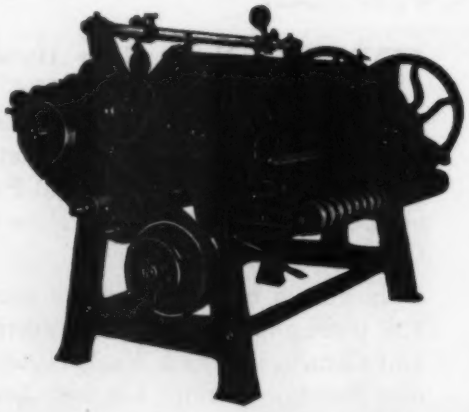

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Machinery from Hudson-Sharp is in use in converting mills throughout the United States with installations in many foreign mills.

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New Papers

Writing—	
White rag	16–40
White sulphite	7–30
Colored rag	15–40
Colored sulphite	7–30
Ledger—	
White rag	16–40
White sulphite	10–30
Colored sulphite	10–30
Colored rag	15–40
Bond—	
White rag	16–40
White sulphite	7–30
Colored sulphite	7–30
Colored rag	15–40
Book—	
No. 1 S. & S. C.	5.50– 8.00
Machine finished	5.25– 8.00
English finish	5.25– 8.00
Coated and enameled	7.00–11.00
Lithograph, M. F.	7.50–12.00
Newsprint—	
Rolls, contract, per ton, delivered New York	62.00–
Rolls, transient, per ton, delivered New York	62.00–
Sheets, per ton, delivered New York	67.00–
Sideruns, per ton, delivered New York	47.00–52.00
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Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1, white, 20x30	.70– .80
No. 2 white, 40x36	.65– .75
No. 1 Manila, 24x36	.65– .75
Kraft	.85– .90
Wrapping—	
No. 1 kraft	4.50– 5.25
No. 2 kraft	3.25– 3.75
Southern kraft	3.25– 3.75

Boards—	New York and Chicago
Solid news	35.00–40.00
Straw	45.00–50.00
Plain chip	30.00–32.50
White coated chip	47.50–50.00
Manila coated chip	42.50–45.00
Binders' board	65.00–70.00

Robt. Gair Licensee for Papendick Patents

It has just been announced that Robert Gair Company has been granted exclusive license under the Papendick patents to manufacture and sell paper bread trays for wrapped, sliced bread in the New England States, New York, New Jersey, Delaware, Pennsylvania, Maryland, West Virginia and part of Virginia.

The Papendick Patent No. 1,722,338 was recently upheld by the United States District Court at Joplin, Mo. There are no restrictions on the license granted to the Gair Company except existing contracts between Papendick and individual bakers in this territory.

Container Corp. Retains Paepcke Management

Stockholders of the Container Corporation of America at their annual meeting March 27 registered a strong vote of confidence in the present Paepcke management, over three-fourths of the votes cast being for the board of directors proposed by the management. The board proposed by the Brunt group, who have been waging a proxy fight, polled but a minor fraction of the entire vote cast, the banking groups throwing their votes with the Paepcke management.

Directors elected at the annual meeting were: Sewell Avery, president of the United States Gypsum Company; William R. Bassett, partner of Spencer, Trask and Company; Walter P. Paepcke, president of Container Corporation; E. R. Hankins and F. G. Becker, vice-presidents of Container; H. B. Clark, representative of Sefton stock interests, and Charles W. Seabury, vice-president of Marsh and McLennan.

At a subsequent directors meeting, by-laws of the company were amended to increase the board of directors from seven to eleven. Four additional directors named by the board were William P. Jeffery, of Jeffery and Redmond, Industrial Engineers of New York; George Meade, president of the Meade Pulp & Paper Company; George Greene, partner of E. H. Rollins and Company, New York, and Wesley M. Dixon, vice-president of Container.

Officers of the company were reelected by the board of directors with the exception of J. P. Brunt, executive vice-president.

Commenting on the action of the stockholders at today's meeting, which was held over from yesterday to enable a count of stockholders proxies, Walter P. Paepcke, president, said: "We are naturally very much pleased at the overwhelming vote of confidence given our management by the stockholders. The intense interest which stockholders took in today's election of directors is witnessed by the fact that all but a few thousand shares of our common stock were voted. We feel that our new board of directors is an excellent one, with seven representing outside banking and other interests and four executives of the Container Corporation."

"Yes, We Have No Apples Today"

"Facts—Not Apples," was the subject of a talk before the paperboard group of the Paperboard Industries Association at the Hotel Commodore on Wednesday, March 18, by Warren B. Bullock, Manager of the Import Committee of the American Paper Industry.

"Apples can be shaken from trees, he said, "but you can't collect facts that way. Although there was some log-rolling in the enactment of the Tariff Act of 1930, the paperboard producers secured important changes in the old law by the use of facts—facts collected in six years of intensive study of the nature, character, and quantity of foreign importations. Through the collection of such data, by the Import Committee, the paperboard industry was able to secure the changes it required in the old law.

"Future tariff revision will see more and more demand for scientific tariff legislation, and the paperboard manufacturers, with the rest of the paper industry, blazed a new trail when the law of 1930 was written, by anticipating this trend in tariff economics.

"Apples have come to be a symbol of business depression. Your industry does not want such symbols. Through the collection of facts, by persistent, constant checking of efforts to evade the laws in the importation of foreign merchandise, and by the application of these facts in times of tariff legislation, you can assure yourselves that, 'Yes, we have no apples today.'"

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Sarpsborg, Norway—Edsvalla, Sweden
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Svanö Aktiebolag, Svanö, Sweden
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KRAFT PULP

Nensjö Cellulosa A.—B., Sprängsviken, Sweden
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The B.C. QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

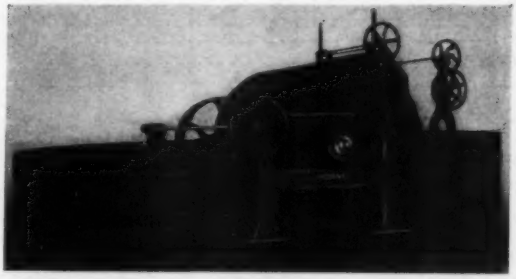
Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company

Incorporated

200 FIFTH AVENUE NEW YORK, N. Y.

HORNE STANDARD WOOD TUB BEATER



Horne Standard Wood Tub Beater designed and built particularly for fine writings made from rag stock. Not as slow as the old type, but with speed carefully regulated. Maximum travel of stock with minimum heat. Uniform circulation. Low power consumption. No lodgement. Tub of gulf cypress. One-piece lighters.

J. H. HORNE & SONS CO.

Established 1864

LAWRENCE, MASS., U. S. A.

Beater Bed Plates—Beater Fly Bars—Beater Rolls—Beating Engines—Brushing Engines—Cylinder Paper and Board Machines—Conservators (Pope)—Dryers—Fourdrinier Paper Machines—Jordan Engines—Jordan Fillings (Regular Steel, Bronze, Stainless Steel and Iron)—Paper and Board Cutters—Cutter Knives—Press Rolls (Rubber Covered, Granite, Iron, Wood)—Screens—Suction Boxes and Covers—Vats (for Paper Machines)—Washing Engines—Wet Machines

EXPORTS

Exports of paper from the United States during the month of January, 1931, reached a total value of $2,050,612, showing an increase over the shipments of a value of $1,978,574 in the preceding month, but a sharp decrease as contrasted with exports of a total value of $3,144,535 in the corresponding month last year, according to official statistics compiled and issued by the U. S. Department of Commerce in Washington. Exports of paper during the last six months of the last calendar year amounted in value to $13,580,644, registering an appreciable decline as compared with shipments aggregating in value $18,255,742 in the similar period of 1929.

Newsprint exports in January last totaled 1,391,441 pounds of a value of $49,474, against 2,950,259 pounds of a value of $104,237 exported in the same month a year ago. Shipments to all the important receiving countries shared in the decrease, with the principal exports in January this year going to Cuba, the Philippine Islands, and South American countries. Exports of uncoated book paper in January amounted to 1,648,223 pounds, valued at $108,203, recording a big decrease as compared with 5,028,459 pounds of a declared value of $327,833 exported in the similar month of 1930. Wrapping paper exports in January were 3,885,542 pounds of a value of $168,758, compared with 5,291,642 pounds of a value of $332,968 in January last year, while writing paper exports reached 1,123,384 pounds of a value of $121,277 last January, against 1,880,296 pounds of a value of $199,259 in the same month a year ago.

Exports of boxboard from the United States in January totaled in value $88,864, contrasted with shipments valued at $195,831 last year in the same month, while exports of other paper board were valued at $106,604, against $198,844 in January, 1930. Paper bags exported in January had a total value of $81,411, compared with $77,990 in the preceding January, and paper box shipments were valued at $87,397, against $100,268 in the similar month last year.

IMPORTS

Wood Pulp

There is a fairly steady undertone in the imported wood pulp market. Sellers appear resolved to obtain the prices asked and are adhering more firmly to rates generally recognized as constituting present market levels. Producers in Europe apparently are basing their faith of ultimate market improvement on the fact that the output of sulphite has been curtailed almost throughout Europe 15 per cent, and, in their insistence on at least the prices now quoted, are contending that current market values are in many cases below the cost of manufacture and are not likely to recede further.

Moreover, there are indications of fair buying interest among American paper manufacturers. At any rate, paper and board producers are coming into the market off and on and placing orders for fair-sized amounts of pulp for forward shipment from abroad, as well as out of spot stocks held in the United States. It is said in the trade that some papermakers are eager to contract for chemical pulp for shipment from primary sources abroad during 1932 at today's prices. A sign that the market is expected to improve appreciably is that producers in Europe are refusing point blank to sell this far ahead. Orders are being accepted readily for pulp for shipment all during the present year at ruling prices, but shippers will not sell for next year at prevailing quotations, it being their view that by the end of 1931 the pulp market will have worked into a much stronger position with prices on a higher level than is now seen.

Imported pulp quotations have recorded scant change from those last reported. As stated above, greater resistance is noted to any further recession, and buyers are finding it necessary to meet certain minimum figures to get the supplies wanted. Strong unbleached sulphite is quoted from a low of about 2.10 cents upwards a pound ex dock New York or other American Atlantic ports, with some especially desirable mill brands of such pulp reported bringing 2.20 and 2.25 cents. Prime easy bleaching sulphite is on a price range of 2.30 to 2.50 cents per pound ex dock, and ordinary Mitscherlich unbleached sulphite around 2.15 cents. Bleached sulphite of prime quality is quoted from 2.75 cents upwards a pound, with some qualities as high as 4.25 cents. Most importers and agents are asking 1.60 cents ex dock New York for prime Scandinavian kraft pulp, though it is said that purchases are still possible in some quarters down to 1.50 cents. On the other hand, the latter price is regarded as the very bottom of the kraft price range, and a good many producers will no longer accept this figure.

Foreign groundwood is in moderate demand on a price level of about $28 per short ton for dry and $27 for moist pulp ex dock Atlantic seaboard for forward shipment from abroad.

Imports of chemical wood pulp into the United States in January were comparatively large, reaching a total of 149,809 long tons of a declared value of $7,148,728, according to official U. S. Department of Commerce statistics, and comparing with 129,637 tons of a value of $6,296,990 imported in the preceding month, and 153,092 tons of a value of $8,570,986 in January, 1930. January importations usually are fairly heavy, reflecting as they do last open water shipments from Scandinavia in the late fall. It is interesting to note that while the January imports this year were only 3,283 tons below the receipts in the same month last year, the value of this year's importations was $1,422,258 below those of a year ago. The average value per ton of last January's imports of chemical pulp was $47 per long ton, as compared with not quite $56 a ton average in January, 1930.

Imports of groundwood in January amounted to 12,852 long tons, valued at $340,620, contrasted with 24,129 tons of a value of $571,670 in December last and 25,378 tons of a value of $738,750 in January a year ago.

Current market quotations ex dock New York, and receipts at the port of New York during March, 1931, these data being taken from vessels reaching that port last month, follow:

Bleached sulphite, No. 1	2.75– 4.25
Unbleached sulphite, strong No. 1	2.10– 2.30
Unbleached sulphite, No. 2	1.90– 2.10
Easy bleaching sulphite	2.30– 2.50
Mitscherlich, unbleached, genuine	2.60– 2.80
Mitscherlich, unbleached, ordinary	2.10– 2.25
Kraft, standard Swedish	1.50– 1.75
Groundwood, per ton (dry)	28.00–30.00

Lagerloef Trading Co., 1,973 bls. from Hango and 159 Helsingfors; Brown Bros. & Co., 240 bls. from Hamburg; Castle & Overton, 1,675 bls. from Hamburg and 360 Rotterdam; E. J. Keller Co., 370 bls. from Hamburg; Atterbury Bros., 275 bls. from Oslo and 300 Bremen; M. Gottesman & Co., 2,500 bls. from Halmstad, 600 Stockholm, 525 Rotterdam and 2,720 Sebenik; Bulkley, Dunton & Co., 1,000 bls. from Gothenburg; Perkins-Goodwin Co., 964 bls. from Gothenburg; E. M. Sergeant Co., 1,471 bls. from Gothenburg;

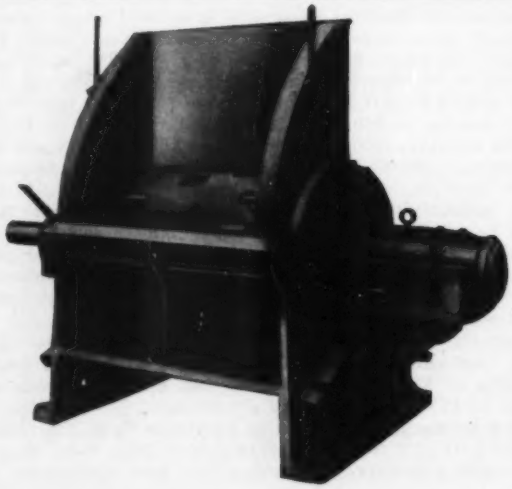
PULP

PERKINS-GOODWIN CO.

Established 1846

551 FIFTH AVENUE, NEW YORK

PAPER



M&M Shredders are designed and built to handle practically every kind of paper stock—including kraft, sheet sulphite, machine broke, lap and roll stock, and old books and magazines.

MITTS & MERRILL

1013 Tilden St. Saginaw, Mich.

Builders of machinery since 1854

RUSS GELATIN CO.

WORKS—WESTFIELD, MASS.

MANUFACTURERS OF

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ANIMAL SIZING GLUE STOCK

LARGEST SPECIALISTS IN AMERICA ON

FINE WRITING PAPER SIZING

E. F. RUSS COMPANY 287 Atlantic Avenue BOSTON, U. S. A.

Pickles' Patent

Automatic Steam Regulator

FOR

Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

W. F. PICKLES Buckland, Conn.

A. W. P. Co., 8,772 bls. from Sheet Harbor, N. S.; Irving Trust Co., 307 bls. from Hango and 3,200 bls. Oslo; Russell McCandless, 150 bls. from Gothenburg; J. Andersen & Co., 3,285 bls. from Greaker; Chatham & Phenix National Bank, 125 bls. from Greaker; Price & Pierce, Ltd., 125 bls. from Gothenburg; Schenkers, Inc., 240 bls. from Hamburg; Order, 511 bls. from Hamburg, 450 bls. Stockholm and 125 Greaker.

Paper Stock

Imports of papermaking rags into the United States in January last were only 8,837,110 pounds of a declared value of $170,999, compared with 38,857,066 pounds of a value of $783,429 in the same month last year, according to official statistics compiled by the U. S. Department of Commerce. Imports of all other paper stock excepting wood pulp in January reached 10,151,569 pounds, valued at $173,681, against 19,049,171 pounds of a value of $330,282 in January, 1930.

Paper stock imports continued on a small scale in March, judging from arrivals at the port of New York last month. Receipts at that port in March, these data being taken from manifests of steamers reaching New York during the month and therefore unofficial, were as follows:

Old Rope—Castle & Overton, 43 coils; William Steck & Co., 239 coils; Brown Bros. & Co., 40 bls. and 120 coils; International Trust Co., 38 bls.; International Purchasing Co., 170 coils; Chemical Bank & Trust Co., 144 coils and 39 bls.; Irving Trust Co., 201 coils; Order, 191 coils.

Old Bagging—Darmstadt, Scott & Courtney, 64 bls.; Castle & Overton, 232 bls.; Banca Commerciale Italiana Trust Co., 108 bls.; Guaranty Trust Co., 413 bls.; International Trust Co., 441 bls.; E. J. Keller Co., 194 bls.; Irving Trust Co., 58 bls.; Hibernia Bank & Trust Co., 232 bls.; Order, 317 bls.

Rags—Victor Galaup, Inc., 113 bls.; S. Birkenstein & Sons, 235 bls.; Castle & Overton, 100 bls.; J. Reiss & Co., 16 bls.; Katzenstein & Keene, 434 bls.; Harmon G. Lichtenstein, 228 bls.; J. Cohen & Sons, 80 bls; E. Butterworth & Co., 130 bls.; Ernst Mayer, 137 bls.; C. Nelson, 69 bls.; E. J. Keller Co., 355 bls.; Advance Import Co., 6 bls.; American Merchant Lines, 144 bls.; Banca Commerciale Hibernia Bank & Trust Co., 44 bls.; Amtorg Trading Co., 5,362 bls.; Chemical Bank & Trust Co., 324 bls.; Guaranty Trust Co., 411 bls.; Chase National Bank, 53 bls.; New York Trust Co., 23 bls.; Hibernia Bank & Trust Co., 44 bls.; Amtory Trading Co., 5,362 bls.; A. W. Fenton, Inc., 119 bls.; American Express Co., 51 bls.; Baring Bros. & Co., 186 bls.; Order, 509 bls.

Miscellaneous Paper Stock—William Steck & Co., 32 bls.; Baring Bros. & Co., 295 bls.; J. Cohen & Sons, 84 bls.; Castle & Overton, 181 bls.; International Purchasing Co., 105 bls.; Alfred Bloch & Co., 88 bls.; S. Birkenstein & Sons, 144 bls.; E. J. Keller Co., 108 bls.; R. F. Downing & Co., 103 bls.

Paper

Importations of paper into the United States, totaling in value $10,784,264 in January, 1931, showed an appreciable decrease as compared with imports of a value of $13,350,144 in the similar month last year, according to official statistics compiled by the U. S. Department of Commerce. Paper imports in March remained on a small scale, taking the receipts through the port of New York last month as a criterion. Some fair-sized shipments of printing, cigarette, wrapping and other classes of paper were received, but the aggregate imports fell well below normal levels. Arrivals of all kinds of paper at New York last month, these data being taken from manifests of vessels reaching that port during March and consequently unofficial, were as follows:

Printing—Perkins-Goodwin Co., 1,494 reels from Hamburg and 168 reels Bremen; Lunham & Reeve, 307 reels from Hango and 62 rolls Gothenburg; P. C. Zuhlke, 36 cs. Antwerp and 13 cs. Rotterdam; W. H. Bell, 3,760 rolls from Liverpool, N. S.; Parsons & Whittmore, 142 rolls from Hamburg; A. S. Zabriskie, 68 reels from Hamburg; Keuffel & Esser Co., 17 rolls from Hamburg; C. Steiner, 17 cs. from Bremen, 5 cs. Antwerp and 44 cs. Rotterdam; E. Dietzgen & Co., 101 cs. from Rotterdam; Jay Madden Corp., 73 reels from Hango and 1,161 reels Helsingfors; J. Henschel & Co., 11 cs. from Hamburg; Walker Goulard Plehn Co., 15 bls. from Hamburg; Baldwin Paper Co., 381 reels from Hamburg; Guaranty Trust Co., 55 bls. from Hamburg; Defiance Sales Corp., 10 cs. from Havre; Stora Kopparberg Corp., 60 reels from Gothenburg; Order, 1,012 reels and 88 bls. from Hamburg, 10 cs. Rotterdam, 218 reels Hango, 1,470 reels and 7 cs. Bremen, and 821 rolls Oslo.

Wrapping—H. Reeve Angel & Co., 4 cs. from Antwerp and 87 rolls and 6 bls. Gothenburg; Borregaard Co., 117 reels and 104 bls. from Gothenburg; F. L. Kraemer & Co., 446 bls. from Gothenburg; Standard Products Corp., 5 rolls and 7 cs. from Antwerp; Sylvania Industrial Corp., 5 cs. from Antwerp; L. Bach & Co., 12 rolls from Antwerp; C. Steiner, 21 cs. from Hamburg; Chemical Bank & Trust Co., 77 bls. from Gothenburg; J. P. Heffernan Paper Co., 19 bls. from Gothenburg; Panama Mail Steamship Co., 25 bls., from Genoa; Order, 2 cs. from Rotterdam.

Cigarette—Standard Products Corp., 58 cs. from Havre; P. J. Schweitzer, Inc., 4 cs. from Southampton, 100 cs. Marseilles and 8 cs. Havre; M. Spiegel & Sons, 29 bls. from Genoa; American Tobacco Co., 442 cs. from Bordeaux; Southern Pacific Lines, 3 cs. from Southampton; DeMauduit Paper Corp., 1,450 cs. from St. Nazaire and 322 cs. Havre; Champagne Paper Corp., 412 cs. from Havre; L. C. Dever, 2 cs. from Trieste; Order, 6 cs. from Havre.

Writing—Guibont Freres & Co., 7 cs. from Southampton; Ameri-

Tensional Strap Saves 20% on Shipments—

From 20 to 60%—from 50¢ to $5.00 per unit has been saved through the Signode Tensional Steel Strapping System. Containers are lightened, freight charges are reduced. Perhaps you can effect similar savings. Send for Signode Shipper or booklet "Guide to Better Packing & Shipping." Signode Steel Strapping Co., 2608 N. Western Ave., Chicago Ill., U. S. A. Offices in principal cities. Canadian Steel Strapping Co., Ltd., Montreal, Quebec.

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The **Sealed Tensional Strapping**

We also furnish round wire tensional reinforcements, all forms of nailed-on strapping, automatic wire tying machines, pail clasps, clutch nails, tag fasteners, etc. Write for general catalog.

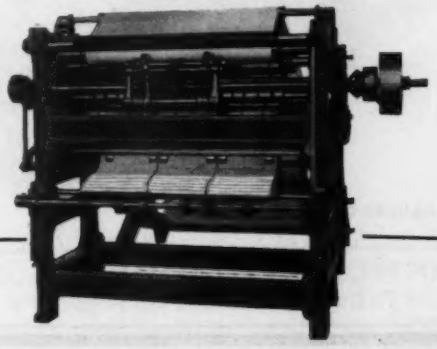
TOWELS

This machine, newly developed, produces 2½ times the number of towels produced on any machine now being sold on the market.

Slit, cut, interfolded—
2½ times faster!
25 cases per hour—
on Full Rotary Towel Interfolder;

Write for details of the fastest machine on the market.

PAPER CONVERTING MACHINE CO.
GREEN BAY, WISCONSIN



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An increasingly better product. Satisfy that demand by securing, — UNIFORM BRUSHING ACTION at the JORDAN and UNIFORM WEIGHTS at the PAPER MACHINES

USE—

The Trimbey WEIGHT REGULATING STUFF BOX

Made by

TRIMBEY MACHINE WORKS

Glens Falls, N. Y. Also "Made in Canada"

Makers of

Metering Systems
Pulp Screens
Consistency Regulators
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Float Valves

HYDRAULIC CUTTING MACHINE

Your cutting or baling problem

Hydraulic cutting or baling equipment, incorporating the latest features of design, for rapid production and handling of paper and pulp products is a Southwark specialty.

Our engineering staff will gladly cooperate with your production department in reducing your product costs with Southwark time-saving equipment. No obligation .... get in touch with our nearest sales office.

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WALL BOARD PRESSES
PULP BALERS PULP TRUCKS

BALDWIN-SOUTHWARK CORPORATION

SOUTHWARK FOUNDRY and MACHINE CO. DIV.

AKRON UNITED BLDG. PHILADELPHIA CHICAGO FISHER BLDG.

can Express Co., 13 cs. from Havre; Titan Shipping Co., 6 cs. from Havre.

Filter—A. Giese & Son., 73 bls. from Southampton; H. Reeve Angel & Co., 89 bls. from Southampton and 25 cs. London; C. Sleicher & Scholl Co., 18 cs. from Hamburg; E. Fougera & Co., 46 cs. from Bordeaux; J. Manheimer, 192 bls. from Southampton.

Tissue—F. C. Strype, 11 cs. from Genoa; W. J. Byrnes & Co., 2 cs. from Southampton; C. L. Voorhees, 18 cs. from Hamburg; B. F. Drakenfeld & Co., 7 cs. from Liverpool; Order, 2 cs. from Southampton.

Hanging—F. J. Emmerich & Co., 16 cs. from Havre and 50 bls. Hamburg; A. C. Dodman, Jr., Inc., 59 bls. from Liverpool; C. A. Haynes & Co., 7 bls. from London; Guaranty Trust Co., 50 cs. from Hamburg; F. G. Prager Co., 247 bls. from Antwerp; Irving Trust Co., 14 cs. from Hamburg; Thomas & Pierson, 2 cs. from Southampton; R. F. Downing & Co., 8 cs. from Southampton, 14 bls. Kobe, 4 cs. Antwerp and 12 cs. Yokohama; Bush Service Corp., 64 bls. from London; F. A. Binder, 5 bls. from Hamburg; Weiss Forwarding Co., 2 bls. from Hamburg; J. E. Bernard & Co., 3 cs. from Antwerp and 6 cs. Gothenburg; Order, 12 cs. from Rotterdam and 15 bls. Hamburg.

Photo—Gevaert Co. of America, 56 cs. from Antwerp; Globe Shipping Co., 18 cs. from Antwerp and 177 cs. Bremen; J. H. Schroeder Banking Corp., 4 cs. from Bremen; P. Puttmann, 5 cs. from Antwerp; J. J. Gavin & Co., 2 cs. from Southampton.

Drawing—Keuffel & Esser Co., 60 cs. from Hamburg and 3 cs. Southampton; H. Reeve Angel & Co., 11 cs. from London and 10 cs. Southampton; Devoe & Raynolds Co., 3 cs. from Southampton.

Board—Lagerloef Trading Co., 485 bls. from Hango; Coty Processing Co., 58 cs. from Havre; Robert Wilson Paper Corp., 5 bls. and 164 rolls from Rotterdam; F. C. Strype, 33 cs. and 38 reels from Rotterdam; American Express Co., 250 cs. from Hamburg; H. Fuchs & Son, 35 bls. from Gothenburg; Salwen Paper Co., 20 bls. from Gothenburg; Chatham & Phenix National Bank, 41 bls. from Gothenburg; Order, 24 cs. from Antwerp and 38 bls. Hamburg.

Miscellaneous—Hensel, Bruckman & Lorbacher, 24 cs. from Hamburg and 13 cs. Havre; Bank of America, 47 cs. from Hamburg; W. A. Foster, 12 cs. from London; P. H. Petry & Co., 8 bls. from Havre; Keller-Dorian Paper Co., 27 cs. from Havre and 8 cs. Hamburg; Richard Hudnut, 8 cs. from Havre; C. H. Boulin, 6 cs. from Havre; Whiting-Patterson Co., 4 cs. from Southampton; B. F. Drakenfeld & Co., 55 cs. from Liverpool; C. Bruening, 82 reels from Rotterdam; Winter, Wolff & Co., 16 bls. from Rotterdam and 35 cs. Antwerp; F. C. Teipel, 8 bls. from Rotterdam; Heemsoth & Passe, 4 cs. from Hamburg; Tamm & Co., 2 cs. from Hamburg; Japan Paper Co., 5 cs. from Gothenburg; F. B. Vandegrift & Co., 12 bls. from Bremen; J. Beckhardt & Co., 2 cs. from Bremen and 3 cs. Rotterdam; Freedman & Slater, 4 cs. from Bremen; Bloomingdale Bros., 4 cs. from Bremen; Kaplan Bros., 6 cs. from Bremen; A. Mallanssenn, 4 cs. from Bremen; Karl Paull Corp., 2 cs. from Rotterdam; J. J. Shore & Co., 17 cs. from Hamburg; Saybush Paper Mfg. Co., 10 cs. from Hamburg; Quality Art Novelty Co., 12 cs. from Hamburg; F. Murray Hill, Inc., 5 cs. from Southampton; Steiner Paper Corp., 3 cs. from Kobe; Davies, Turner & Co., 13 cs. from Hamburg; E. G. Baehr, 2 cs. from Havre; Cheramy, Inc., 3 cs. from Havre; J. H. Schroder Banking Corp., 7 cs. from Bremen; A. A. Schreider, 13 cs. and 2 rolls from Glasgow; Titan Shipping Co., 2 cs. from Hamburg; Judson Freight Forwarding Co., 8 cs. from Hamburg; International Forwarding Co., 74 cs. from Hamburg. 26 cs. Antwerp and 11 cs. Rotterdam; National Freight Forwarding Co., 2 cs. from Hamburg; American Express Co., 6 rolls and 40 cs. from Hamburg, 22 cs. Havre and 4 cs. Bremen; Maritime Inspecting and Forwarding Co., 15 cs. Havre; Atlantic Forwarding Co., 12 cs. from Bremen and 12 cs. Hamburg; Globe Shipping Co., 17 cs. from Bremen.

The Conflict in the Norwegian Paper and Pulp Industries

The conflict in the Norwegian paper and pulp industries, long regarded as inevitable, says the Svensk Pappersmeasse-Tidning of March 16, is now a reality, the mediating negotiations having failed and the agreement prolonged last autumn having expired on March 14 at practically all mills belonging to the Paper Industry Employers' Association. In all, about 12,500 men are affected by the conflict. The mediator is only allowed to summon the parties to new negotiations after 30 days, if an agreement has not been reached before then.

According to the information of our Swedish contemporary the negotiations for a renewed labor agreement indicated large divergencies between the parties. The workmen have demanded a reduction of the working week from 48 to 42 hours, with pay-compensation for the six hours reduction, and have also demanded a revision of a great many general regulations. The employers have demanded a 15 per cent reduction of wages, and adjustments according to the index of living costs.

The Merco Nordstrom Valve Company, San Francisco, Calif., has removed its Los Angeles office to new and larger quarters at 1709 West Eighth street.

The Zellerbach Paper Co., Phoenix, Ariz., has been made a distributor of Brown's Linen Ledger permanent record ledger paper, made by L. L. Brown Paper Co. of Adams, Mass.

Jones

A name that has won a world-wide reputation through 75 years devoted to paper-making progress

"MORE EFFICIENT"

SAYS A
MILL MANAGER

THE Manager of a large Eastern mill has this to say about their recent installation of JONES BEATERS:

" . . . . we are very much pleased with the general results obtained and believe that this beating engine is more efficient on this work than any beaters we have tried or, in fact, any similar beaters that we have seen in other mills"

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IS INTERNATIONAL

PAPER-MAKING MACHINERY
E D JONES AND SONS COMPANY
ESTABLISHED 1846
PITTSFIELD, MASS.

E. D. JONES & SONS COMPANY
PITTSFIELD · MASSACHUSETTS
BUILDERS OF HIGH GRADE MACHINERY FOR PAPER MILLS

Morey Paper Mill Supply Co.

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Brandon "TRI-UMPH" 3-Ply Dryer Felts

Up to 245" in Width

CAREFUL, INTELLIGENT, QUICK SERVICE

Union Screen Plate Company

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

UNION BRONZE

SCREEN PLATES FOR FLAT SCREENS

6 SLOTS—5 SLOTS—4½ SLOTS—4 SLOTS—PER INCH

Old Plates Reclosed and Re-cut to Accurate Gauge

Rolled Phosphor Bronze and Copper Plates for Rotary Screens

Sole Manufacturers of the Union-Witham Screen Plate Vat and Fastener

Consider This New Eastwood Seam With Big Open Suction Area

WHAT would a strong light show if you put it under the seam used on all Eastwood "Perfection" Fourdrinier Wires?

This is what you'll find:—The Eastwood seam has very nearly the same suction area as the body of the wire. As you know, that makes for better operation when running on the Fourdrinier machine.

Compare the Eastwood seam shown above with the old fashioned seams. Its superiority as to open suction area and simplicity is at once apparent.

This seam is now standard on all our Fourdrinier wires, from those for 10 lb. tissue up to high speed newsprint.

EASTWOOD CORPORATION

Established 1877, Belleville, N. J.

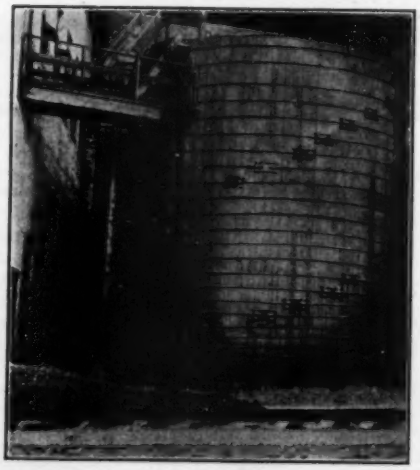
"American Paper Made on American Wires"

EASTWOOD

"Perfection" WIRES

"Perfection" VALVES

TANKS THAT LAST



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Kalamazoo tanks are made of best obtainable tank woods, built right—guaranteed tight.

Sixty years experience building Blow Pits, Acid Tanks, Stuff Chests, Agitators, etc., for the Paper Trade.

See our condensed catalog in Paper & Pulp Mill Catalog, Chemical Engineering or Sweets.

Ask about our new Tile Tanks for stock or bleach.

KALAMAZOO TANK & SILO CO., Kalamazoo, Mich.

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 50387—Paper boxes for neckties, plain and in colors. Panama City, Panama. Purchase desired.

No. 50382—Impregnated paper, fertilizer, for agriculture. Lyons, France. Purchase desired.

No. 50277—Wallpaper, and wrapping, building, and printing papers. Paris, France. Purchase and agency desired.

No. 50361. Waterproof paper for agricultural use. Zug, Switzerland. Agency desired.

No. 50381—Writing, creamlaid, newsprint, glazed and unglazed, bank post, and ledger paper. Bombay, India. Purchase desired.

No. 50320—Casein. Boulogne-sur-Seine, France. Agency desired.

No. 50423—Cigarette paper. Santo Domingo, Dominican Republic. Purchase desired.

No. 50422—Paper towels. Copenhagen, Denmark. Agency desired.

No. 50393—Writing paper. Bombay, India. Agency and purchase desired.

No. 50444—Caustic soda. Sao Paulo, Brazil. Agency desired.

No. 50535—Paper containers for ice cream. Milan, Italy. Purchase and agency desired.

No. 50536—Fiber sheets, vulcanized. Zurich, Switzerland. Purchase desired.

No. 50504—Paper towels, cups and plates, and adding machine and cash register paper in rolls. Cairo, Egypt. Agency desired.

No. 50491—Paper towels, paper napkins and toilet paper. Toronto, Canada. Agency and purchase desired.

No. 50525—Waxed paper. Quebec, Canada. Purchase desired.

Kymmene Ltd. of Finland Acquires English Mills

The Kymmene Company, Ltd., of Finland, operating pulp and paper mills at Kymmene, Kuusankoski and Woikka, with head offices at Helsingfors, Finland, has acquired a controlling interest in two English paper manufacturing concerns: the Star Paper Mill Company, Ltd., Feniscowles, near Blackburn, and the Yorkshire Paper Mills, Ltd., Barnsley, Yorkshire, the latter company being owned by the former. E. Reeve Angel, a director of H. Reeve Angel & Co., Ltd., London, has been appointed chairman and managing director of the consolidated mills and Erik Palmgren, for some years head engineer at the Woikka plant in Finland, has been appointed technical manager. Mr. Angel had a successful academic career before entering the paper trade. He got his early education at the Imperial College of Science and Technology, London, and on coming to the United States with his father, some 15 years ago, he entered Harvard University, from which he was subsequently graduated with the degree of M.Sc.

Ryerson Appoints Plant Manager

Joseph T. Ryerson & Son, Inc., Chicago, announce the appointment of E. M. Vehmeyer as manager of their Detroit plant.

Mr. Vehmeyer has been associated with the firm for over 22 years, the majority of this time having been spent in the sales and service departments. For the past two years he had been sales manager in the Detroit plant.

W. E. Basse, former Detroit plant manager, has been transferred to Chicago where he will engage in special sales work.

Thomas Raymond Evans, president of the Diamond Alkali Company, Philadelphia, passed away at his home in Philadelphia, March 17.

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Boxboard Mill Consolidation

A consolidation has recently been effected of a number of boxboard mills located in the Central Western territory, into a new corporation to be known as the Central Fibre Products Company.

This group, all of which are old established paper mills and fabricating plants, consists of the Indiana Board & Filler Company, Vincennes, Indiana; North Star Strawboard Mills, and Quincy North Star Co., Quincy, Illinois; Waterloo North Star Co., Waterloo, Iowa; Emerson Carey Fibre Products Co., and Hutchinson Egg Case Filler Company, Hutchinson, Kansas; and the paper mills division of the Cherry-Burrell Corporation, located at Tama, Iowa, and Peoria, Illinois; and Creamery Package Mfg. Company located at Coffeyville, Kansas.

The principal activity of the Central Fibre Products Company is the manufacturing of strawboard, boxboard and wall board. In addition, the company operates fabricating plants manufacturing egg case material, egg packing supplies and other articles of like nature.

The affairs of the new company will be carried on by the old employees, who, for many years, have conducted the separate companies. The executive officers elected are: H. T. Cherry, Tama, Iowa, president; Chas. E. Carey, Hutchinson, Kans., vice-president; E. P. Lannan, Quincy, Ill., secretary and treasurer. The directors, in addition to the above executive officers are: A. W. D. Weis, Quincy, Ill., Emerson Carey, Sr., Hutchinson, Kans., W. D. Coil, Griffith, Ind., H. H. Cherry, Cedar Rapids, Iowa, R. F. Davis, Chicago, Ill., H. A. Limbert, Waterloo, Iowa.

The executive offices of the new company will probably be established in Chicago.

Penna.-New Jersey Supers to Meet

J. Linville Mullin, secretary-treasurer of the Penna.-New Jersey Division of the American Pulp and Paper Mill Superintendents' Association, announces that final arrangements have been made for the forthcoming convention of the division at Yorktowne Hotel, York, Pa., Friday and Saturday, April 24 and 25, 1931. Registration will begin Friday morning at 9 o'clock and from 10:30 a. m. till noon visits will be made to local mills and factories in York and vicinity. After luncheon the members will be taken in motor cars to Spring Grove for an inspection of the plant of the P. H. Glatfelter Company and later in the afternoon golf will be played for prizes donated by P. H. Glatfelter and the Cheney Bigelow Wire Works.

Members and guests will meet for dinner at Hotel Yorktowne in the evening when an address of welcome will be made by Major J. B. Weaver of York, Pa. Entertainment will be provided, such as singing under the direction of V. L. Sanderson and daughter.

The program for Saturday provides an almost continuous business session, with papers on the Terry Steam Turbine and the motorization of the paper industry; a paper on corrosion by J. D. Miller, and one on steam economy and heat balance in the paper mill by one of the local engineers. A round table question and answer symposium will be conducted by Former-President James G. Ramsey.

The meeting will close with a banquet on Saturday evening at 7:30 o'clock. Mr. Ramsey will be toastmaster and Carl Magnus, president of the national association, will be guest of honor.

Ladies are invited and provision has been made for their entertainment.

The spring meeting of the Northern New York Division of the American Pulp and Paper Mill Superintendents Association will be held at the Hotel Syracuse, Syracuse, N. Y., on April 18. Details of the program have not been announced, but it is understood plans are being made for a meeting of special interest.

The Nineteenth annual meeting of the United States Chamber of Commerce will be held at Atlantic City, N. J., April 28, 29, 30 and May 1.

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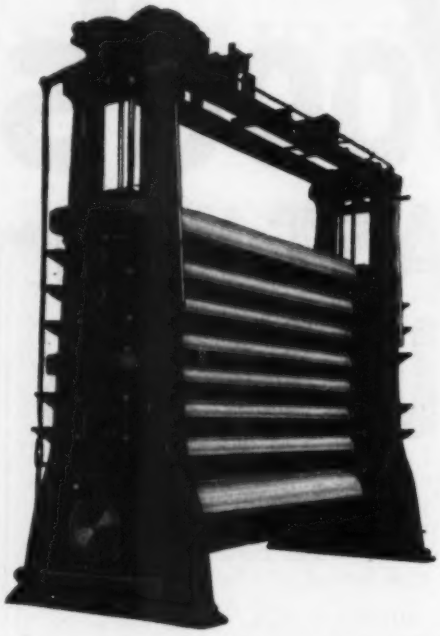

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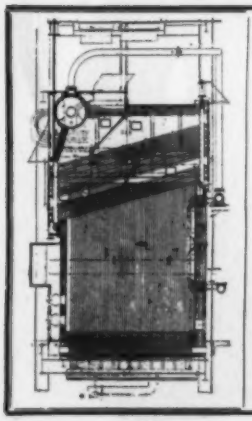

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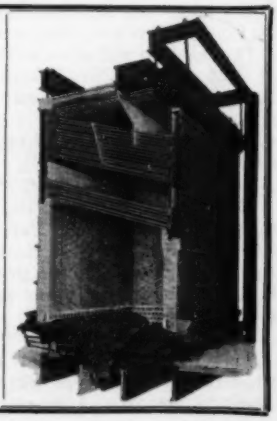
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